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YORKSHIRE  
TYPE  
AMMONITES

There is nothing to be dreaded in new names, except by those who strive to get the animal kingdom by heart.

*A. Hyatt*, 1876

# YORKSHIRE TYPE AMMONITES

EDITED BY

S. S. BUCKMAN, F.G.S.

The original descriptions reprinted, and illustrated by figures of the types,  
reproduced from photographs mainly by

J. W. TUTCHER

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## INTRODUCTION

### EDITORIAL

In commencing the second volume of this publication it is the Editor's pleasant duty to record further kind assistance. The authorities of the Whitby Museum and of the Geological Survey Museum, London, have continued their kindness. Prof. McKenny Hughes and Mr. H. Woods have kindly forwarded from the Sedgwick Museum, Cambridge, a considerable series of types named by Simpson, Bean and Leckenby, described by the last-mentioned from the "Kelloway Rock," of Yorkshire. Other species of Bean's have been submitted by the authorities of the Museum of the Yorkshire Philosophical Society, York; while Mr. H. Wilfrid Jackson, F.G.S., has drawn attention to certain Yorkshire types of Capt. Brown's in the Manchester Museum, and has sent specimens. Mrs. Clarkson, widow of the late Dr. Clarkson, whose collection Simpson mentions, has, in the most kind manner, forwarded for inspection the whole of her late husband's collection of Ammonites, so that a systematic search could be undertaken: several very important types have been the reward.<sup>1</sup> Mr. C. Thompson has assisted in tracing certain types; Mr. C. Davies Sherborn, F.G.S., and Mr. L. F. Spath, F.G.S., have forwarded useful information. To all those mentioned, and to Dr. Kitchin and others for help in many ways, cordial thanks are tendered.

The whereabouts of the greater part of the Jurassic type Ammonites of Yorkshire are now known. The specimens referred to by Simpson as in the Charlesworth Collection have not yet been traced; and, as they may be widely scattered, an appeal is hereby made to those who have opportunity to search. The species are *A. simplex*, *A. dejectus*, *A. aliænus* (SIMPSON, 1855, pp. 84, 85), probably all *Oxynoticeras*. There are also a species mentioned as described from a dealer's collection, *A. bispicatus*, (SIMPSON, 1855, p. 102, 1884, p. 105) a *Derocheras*, or a *Microderoceras*, and the holotype of *A. aculeatus*, see No. 72.

### BIBLIOGRAPHIC DETAILS

See Vol. I, p. iii.

Two further works dealing with new species of Ammonites from Yorkshire may be noticed. The first is entitled: Illustrations of the Fossil Conchology of Great Britain and Ireland, with Descriptions and

<sup>1</sup> Just after these remarks were penned comes the sad news of the death of Mrs. Clarkson.

Localities of all the Species. By Captain Thomas Brown, M.P.S., Member and formerly President of the Royal Physical Society; Member of the Wernerian Natural History Society; Corresponding Member of the British Archæological Association; Local Secretary of the Syrio-Egyptian Society; Honorary Secretary of the Manchester Geological Society; Member of the Manchester Natural History Society, and Curator of its Museum. London: Smith, Elder, and Co. And Maclachlan and Stewart, Edinburgh. MDCCCLXIX.

This work was published in parts in the years 1837 to 1849 (C. Davies Sherborn Proc. Malacol. Soc., VI, 1905 358). It contains new species of Ammonites, namely *A. cornuoides*, *A. minimus*, and in the Appendix, *A. allasii*, *A. calcar*, *A. cookii*, *A. dissimilis*,\* *A. rotifer*,\* *A. gamma*: some, perhaps all, of these are from Yorkshire, and those starred have been found in the Manchester Museum. Search for others is requested.

This work, if referred to, will be cited as "BROWN, 1837, or 1849."

The second is a small but important paper, with the following title:—"2. On the Kelloway Rock of the Yorkshire Coast. By John Leckenby, Esq. (Communicated by John Morris, F.G.S.)—Quarterly Journal of the Geological Society of London, Vol. XV, 1859, pp. 4-15, Plates I-III. This paper was read on March 24, 1858, and published Feb. 1, 1859 (date on cover). It contains about 20 new species of Ammonites, of which many are unfigured, and it supplements the works of Young & Bird, and of Phillips.

The paper will be cited as "Leckenby, 1859."

#### TERMINOLOGY

BIOGENETIC TERMS. (See Vol. I, p. vii).

Homœomorphy. The following methods by which it is produced may be termed

<i>Subparallel</i>	along similar lines,
<i>Cyclical</i>	turning round to go back,
<i>Transversal</i>	paths of development crossing. <sup>1</sup>

Subparallel homœomorphy denotes the result produced by similar changes in fairly similar genetic stocks—for instance, costate serpenticones producing smooth sphaericones. Examples: *Cadoceras*, *Quenstedtoceras*, *Cardioceras*. And the catagenetic broad-whorled Hildoceratids, *Witchellia*, etc., are examples in another direction.

Cyclical homœomorphy denotes the result produced by species in catagenesis losing their phylephebic characters, and becoming similar to anagenetic species—a post-tuberculate costate species being like a pre-tuberculate costate. Example: *Beaniceras luridum* to *Ægoceras capricornum*. See No. 73.

Transversal homœomorphy denotes the crossing of stocks in the courses of their development. A thin stock is becoming thicker

<sup>1</sup> See Abstracts Proc. Geol. Soc. No. 938, 1913, p. 72



(*Cadoceras*) ; a thick stock is becoming thinner (*Pachyceras*) : there is a median collision point with a maximum of likeness, where the species are homœomorphic and may be (have been) confounded. *Stephanoceras sublæve* ; Deslongchamps, (Foss. Oxf. ; Notes pal. ; 1889, I, 1-4) is not Sowerby's species, is not even a species of *Cadoceras*, but is a *Pachyceras*.

DESCRIPTIVE TERMS. (See Vol. I., p. viii)

In Mon. Inf. Ool. Amm., 1898, Suppl. p. ii, S. BUCKMAN introduced a series of concise terms descriptive of shape and number of whorls, and in p. v terms for umbilication, as follow :—

{	<i>Polygyral</i>	with many whorls (slow coiling).
	<i>Oligogyral</i>	with few whorls (quick coiling).
{	<i>Stenogyral</i>	with narrow whorls.
	<i>Platygyral</i>	with broad whorls.
{	<i>Leptogyral</i>	with thin whorls.
	<i>Pachygyral</i>	with thick whorls.
{	<i>Angustumbricate</i>	with narrow umbilicus.
	<i>Latumbilicate</i>	with broad umbilicus.

In 1903 (Quart. Journ. Geol. Soc. LIX, 461) some of these terms were expanded by the use of *per-* and *sub-* into six series of percentages of a base-line, the radius = 100 (See also Mon. I. O. Amm., 1905, p. cxcvii).

It is obvious that a base-line founded on the radius was correct for the breadth of the whorl ; and, in fact, is the only one possible ; because the breadth of the whorl must vary within that limit, reaching possibly to 100 per cent. of such base-line. But a base-line founded on the diameter would give incorrect values for the breadth of whorl, which in an extreme case might reach to no more than some 55 per cent. of such base-line. Then a base-line founded on the radius gave quite satisfactory results for the thickness of the whorl, though, in abnormal cases, the thickness exceeds 100 per cent. of such base-line. But a base-line founded on the diameter, though not giving results so unsatisfactory as in the case of the breadth, would afford less discrimination among the numerous thin-whorled forms ; for the longer the base-line the larger the number of whorls which would be called thin. And there is the same objection to a long base-line in regard to the nomenclature of umbilication. All these considerations influenced the choosing of a short base-line such as the radius.

As, however, a base-line founded on the diameter = 100 has been used in many works for measurements of proportions, it is advisable to retain that base-line for such measurements, in order to compare specimens, without calculation, with those for which proportions have been given.

An innovation will be made in this volume—an extensive use of the Measurement Table, published in the Appendix of Vol. I (facing p. D) ; and it is necessary to explain this before proceeding further. The proportions of the types will be given in the following manner, for example : 30, 22, 22, 55. These figures stand for—Diameter, 30 mm. ; Breadth of whorl, 22 per cent. of the diameter ; Thickness (maximum) of whorl, 22 per cent ; Umbilicus (width), 55 per cent. As the figures will always be given in the same order in a formula, it will be quite unnecessary to repeat the details, the sequence will always read Diameter, Breadth, Thickness, Umbilicus. In the case of the Comparable Species, the proportions will be added after the reference, so far as circumstances permit of their being ascertained. And if any one proportion cannot be given a dash will be placed, thus, 30, 22, —, 55, so as to retain the same stereotyped formula.

These formulæ will be preceded by certain letters, namely, S = specimen, T = text, F = figure, to indicate which have been used ; for sometimes delineations are incorrect, and sometimes the figures in the text do not agree with those ascertained from the delineations, through misprints, incorrect drawing, or miscalculation.

Figures in brackets, after the first proportion, thus 33 (63), indicate the actual size of an enlarged (or reduced) delineation, the first figures indicating the actual size of the specimen.

To return now to the Terms : it is advisable to make use of only the one set of figures. Therefore, in order to meet the case, it is necessary to call the radius 50 per cent. of the diameter. Then the six series of percentages can be divided among the 50 per cent. of the diameter taken as the general base-line instead of the radius. This will enable the terms to be employed in the following manner :—

To 8%  
of diameter { *Perstenogyral*  
*Perleptogyral*  
*Perangustumbilicate*

From 8  
to 17% { *Stenogyral*  
*Leptogyral*  
*Angustumbilicate*

From 17  
to 25% { *Substenogyral*  
*Subleptogyral*  
*Subangustumbilicate*

From 25  
to 33% { *Subplatygyral*  
*Subpachygyral*  
*Sublatumbilicate*

From 33  
to 42% { *Platygyral*  
*Pachygyral*  
*Latumbilicate*

From 42  
to 50% { *Perplatygyral*  
*Perpachygyral*  
*Perlatumbilicate*

For dimensions exceeding 50% of the diameter, = 100% of the radius approximately, the term *extremi-* can be affixed, modified up to 66% by *sub-*, from 83% by *per-*.

Thus the figures given above (p. viii) namely 22, 22, 55, show a species substeno-, subleptogyral, subextremi-latumbilicate.

Taking the radius as 50% of the diameter will make very little difference in the case of polygyral shells, but it will make some difference in the case of oligogyral specimens: those which have been described on the actual radius will sometimes shew discrepancies when described on half the diameter. But the conveniences of the present plan far outweigh any disadvantages in such cases.

### AMMONITE DEVELOPMENT

See Vol. I, p. x.

Some additional terms are required:—

**CADICONE** (cadus, a cask), coiled cones with divergent sides and broad venter. Examples: *Cadoceras*, *Erymnoceras*, *Teloceras*, *Cæloceras*, *Emileia crater* sp. n.<sup>1</sup> *Tropites*, *Gastrioceras*, etc.

It is a transitional stage which, by umbilical contraction, may pass to sphærocone (*Cadoceras*), or by umbilical expansion and whorl compression may produce serpenticones (*Skirroceras*, ex *Teloceratan* form); or the sequence may be cadicone, sphærocone, serpenticone (*Emileia*).

**PLATYCONE**, coiled cones with broad, flat sides which are not oxycones, because they have not acute venters. The stage is transitional between serpenticone and oxycone, and has sometimes been expressed in earlier parts of this work as "becoming oxycone." Examples:—more or less platygyral species, especially when also more or less leptogyral:—*Arietites*, *Hildoceratids*, *Witchellia*.

<sup>1</sup> This remarkable species, an *Emileia* in the cadicone stage, has a *Teloceratan* aspect with a deep craterumbilicus, though the body-whorl is contracting, as is the rule in all old-aged specimens of *Emileia*. The proportions of the type are:—

163,	34,	47,	40
124,	36,	67,	34
103,	36,	74,	34

Thus the conch contracts 7% in the first half of the last whorl, and 20% in the second half, while the umbilicus expands 6% in the last half-whorl. So the species is platygyral, extremi- to pachygyral, latumbilicate.

This species is a most interesting link connecting *Emileia* with an unknown *Teloceratan* ancestor, for it shows that the genus begins in the cadicone (*Teloceratan*) stage. Club-shaped costæ instead of spines distinguished it from *Teloceras*, so does a more complicated suture-line.

On the evidence of this species *Emileia* was placed as springing from *Cæloceras* (now *Teloceras*) in Jur. Time; Quart. Journ. Geol. Soc., 1898, LIV, Table II.

The type is from the Bajocian, [*Shirbuirnia* zone], Sandford Lane, Sherborne, Dorset. No. 1242, S. Buckman Coll.

## GEOLOGICAL DETAILS (Lower Oolites)

The upward continuation of the stratigraphical Table given in Vol. I, p. xvi, may now be presented. The important bed in the Lower Oolites, in connection with Ammonites, is the Scarborough Limestone, which was deposited, perhaps more or less discontinuously, during certain hemeræ about the middle of the Bajocian Age. A considerable portion of the rest of the Yorkshire Lower Oolites consists of estuarine strata, which can only be dated approximately: it is possible that there are some considerable non-sequences—that, for instance, there may be really no deposit at all representing the Bathian Stage.

For further details and for information as to the dating, see L. Richardson, "Lower Oolitic Rocks of Yorkshire"; Proc. Yorksh. Geol. Soc. XVII (3), 1911, 184-215.

## TABLE I—STRATIGRAPHY

See Vol. I, p. xvi

## Stages, Zones (Hemeræ) and Yorkshire Lower Oolites

Stage Zone (or Hemera)		Stratal Terms (Yorkshire)	Stratal Terms (General)	
BATHIAN	discus .. ..	Absent ?	Cornbrash (pars). Forest Marble.	
	marmorea <sup>1</sup> .. ..	Absent ? or represented more or less by part of Upper Estuarine Series.	Great } Upper Oolite. } Fullers' Earth, } wholly, or } in part. } F. E. Rock.	
	digona <sup>2</sup> .. ..			
	digonoides <sup>3</sup> .. ..			
	bathonica <sup>1</sup> .. ..			
	waterhousei .. ..			
morrisi .. ..	Upper Estuarine Series.	Stonesfield Slate. } Lower Fullers' Earth. } F. E.		
VESULIAN	gracilis .. ..	More or less represented by the Moor Grit.	Fullers' Earth / Inferior Oolite (locally). / (locally).	
	acuminata <sup>4</sup> .. ..			Upper Estuarine Series.
	fusca .. ..			Upper Inferior Oolite.
	zigzag .. ..			
	schloenbachi .. ..			
	truellii .. ..			
garantiana .. ..				
niortensis .. ..	Scarborough Limestone, or Grey Limestone, (Bath Oolite—Phillips). Middle Estuarine Series. or Middle Shale and Sandstone. Millepore Limestone, Whitwell and Cave Ool.	Middle Inferior Oolite.		
Teloceras .. ..				
Stepheoceras .. ..				
Stephanoceras .. ..				
Stemmatoceras .. ..				
sauzei .. ..				
BAJOCIAN	Witchellia .. ..	Lower Estuarine Series, with Ellerbeck Bed. The Dogger. ? The Nerinæa Band.	Lower Inferior Oolite.	
	Shirbuirnia .. ..			
	post-discites .. ..			
	discites .. ..			
	concava .. ..			
	bradfordensis .. ..			
	murchisonæ .. ..			
	Ancolloceras .. ..			
	scissum .. ..			
AALENIAN	opaliniiforme .. ..	Absent ?		
	aalensis .. ..			

<sup>1</sup>*Epithyris*.    <sup>2</sup>*Ornithella*.

<sup>3</sup>*Ornithella* **digonoides**, nov. A species much stouter and less angulate than *O. digona*, J. Sowerby sp., Min. Cinch. xcvi, 1, 2: more approaching his figs. 4, 5. It is from Great Oolite of Northamptonshire.

<sup>4</sup>*Ostrea*.

SYSTEMATIC

NOMENCLATURE





## SYSTEMATIC

See Vol. I, pp. i-viii

Genus, BEANICERAS, nov.

Type, *Am. luridus*, Simpson (see No. 73).

A Liparoceratid which attains a capricorn-like stage by development contrary to that of other capricorn genera : they develop from serpenticon (capricorn) to sphærocone ; but this develops from (tuberculate ?) cadicone to serpenticon. In the other genera the capricorn stage is anagenetic ; in this one it is catagenetic.

The suture-line shows a marked A-shaped cell parting the peripheral or external lobe.

The costæ not so massive as in other Liparoceratid genera, and the umbilicus flattening out after an early cadicone period are the features of distinction.

If *Am. luridus* be rightly interpreted as a development of *Am. centaurus*, d'Orbigny, then that species represents the spinous cadicone stage ; and the generic definition could read :—Catagenetic series, developing from tuberculate cadicone to costate serpenticon. The likeness of *Beaniceras* to other Liparoceratid genera, shown by Blake's placing *Am. luridus* as a synonym of *Egoceras capricornum* (BLAKE, 1876, 281), and by Geyer's similar misidentification of a species of *Beaniceras* (GEYER, 1893, III, 7, 8, 10), is a phenomenon of cyclical homœomorphy, (II, vi).

Derivation : In honour of W. Bean, of Scarborough, Simpson's contemporary.

Genus, BIFERICERAS, nov.

Type, *Bifericeras biferum*, Quenstedt sp.

A Liparoceratid series distinct from *Deroceras* on account of its simple suture-line without hanging inner portion ; distinct from other Liparoceratids by its fairly long smooth larval (nepionic) stage ; from the capricorns by not developing sphærocones. It shews similar, but much slower development than the capricorns ; for the swelling of the whorl in the bituberculate stage is only slight—a feeble refiguration of later development in the family.

The type is cited as above so that an actual genotype may be figured, and there may be no question of misidentification : the figured example to be the type.

Genus, WALKERICERAS, nov.

Type, *Walkeria delicata*, S. Buckman

A necessary change of name : *Walkeria* is pre-occupied. The type is in Mon. I. O. Amm., 1904, Suppl., p. cxi, fig. 122.

Genus, GEYERINA, nov.

Type, *Geyeria fasciata*, S. Buckman

A necessary change of name: *Geyeria* was forestalled by a few months. The type is in Mon. I. O. Amm., 1899, Suppl., Pl. vi, figs. 17-19.

Genus, EUHOPLOCERAS, nov.

Type, *Sonninia acanthodes*, S. Buckman

The name was chosen many years ago for the purpose of describing the *concarum* [and *discites*] zone *Sonninines*. They were, however, ranged under *Sonninia*, in deference to the prejudice about too many generic names. It was a mistake. The massive quadrate-whorled *Sonninines* with broad, flattened periphery and low keel are quite distinct from the true *Sonninæ* with much compressed, broad whorls, narrow periphery and high keel.

The type is in Mon. I. O. Amm. Pl. LX. All the species described in that work as *Sonninia* in Pls. XLVIII-CIII should be placed here. They belong to several series, which pass independently through catagenetic phases from spinous to smooth.

Derivation:—*eu* well, *πλα*, weapons.

Genus, PLANITES, DE HAAN

1825, Amm. et Goniât. pp. 34, 79-94.

Testa septata, septis frondosis, discoidea, spiralis: anfractibus vix involutis, sensim incrassatis" (p. 34). Species analysed and described, pp. 79-94.

No type was selected, but according to the name *Planites planulatus*; de Haan sp. appears to be the natural type. It was founded on "*Am. planulatus*, Schlotheim, 1a," and *Am. brodiaei*, Sowerby. The former (1a) stands for "*Am. polygyratus Reineckii*,"—Schlotheim, Petref. 1820, pp. 59, 60.

*Planites* then would become the generic name for Siemiradzki's "Mutationsreihe des *Per. polygyratus*" (1898, p. 161).

*Planites* is a generic name which has been overlooked, being a premature attempt at the generic division of *Ammonites*. It was intended for those species which are feebly involute serpenticones. Most of the species allocated to it by de Haan have modern generic names, but *A. planulatus*, Schlotheim, may be regarded as a division of *Biplices* (*Perisphinctes*) which is sufficiently free.

### Result

Genus, *Planites*, de Haan, 1825. Genolectotype, *P. planulatus*, de Haan, pars, = *A. planulatus*, Schlotheim, 1a, = *Nautilus polygyratus*, Reinecke = *Perisphinctes polygyratus*, as interpreted by Siemiradzki, 1898, p. 167.

Genus, BRODIEIA, S. BUCKMAN

1898, Mon. I. O. Amm., Suppl. pp. xii, xxxi.

"Type: *Brodieia curva*, sp. n." (p. xxxi). Forestalled by *Brodia* (p. xxxiii).

Genus, BRODICERAS, S. BUCKMAN

1899, Mon. I. O. Amm., Suppl. p. xxxiii.

"It is necessary to substitute *Brodiceras* for *Brodieia* above."

Genus, WHITBYICERAS, nov.

Type, *Am. pinguis*, Simpson (see No. 80).

Like *Brodiceras*, but distinguished by a definite carinati-bisulcate venter (carina septate), and by a different radial line—it has less lateral flexure and much more peripheral projection.

The rib-curve is much like that of *Pseudogrammoceras*, S. Buckman; but the style of growth—stout whorls with small umbilicus—is quite different, showing it to be connected with the series (there are several stocks) temporarily ranged under *Brodieia* (Mon. Suppl. p. xii), later *Brodiceras* (see above).

Family, LIPAROCERATIDÆ, HYATT

Uncarinate, costate serpenticones, which in the main become bituberculate serpenticones with swollen whorls, and sometimes ultimately sphaerocones. The suture-line passes from simple to complex, but is not retracted umbilically.

Family, ECHIOCERATIDÆ, nov.

Uncarinate, costate serpenticones become carinate and carinati-bisulcate serpenticones with compressed whorls, the suture-line remaining simple. Though the early (costate) stage is similar to Liparoceratidæ, the later stage with carination is very distinct. Bituberculation is not known.

The series comprised in this family may be primitive Hildoceratidæ, but the geological separation is considerable, and as direct connection is not apparent, a separate name is useful. The Hildoceratidæ have probably passed independently through similar stages, perhaps along more than one line.

Genus, GAGATICERAS, nov.

Type, *Am. gagateus*, Young & Bird (see No. 78).

Capricorns distinguished from *Androgynoceras*, etc. (I, iii) by simple suture-line, polygyral characters, bead-like ribbing of inner whorls and a suggestion of carination. From *Bifericeras* (II, iii) by this last character, by lacking the smooth larval stage and by a simpler suture-line. From *Echioceras*, Bayle, by the shortness of the EL, and the more primitive character of the whole suture-line, while in *Echioceras* the ribs of the inner whorls are small, plain, and very approximate.

The suture-line, which is of a simple pattern, shows short and broad lobes and shallow ES;  $L^1$  is particularly broad, and  $S^1$  is somewhat contracted.

This genus appears to connect the Liparoceratidæ and Echioceratidæ, showing that they have a common origin in a capricorn-like form with simple suture-line.

The present genus has a simpler suture-line than *Bifericeras*, and instead of passing rapidly from smooth to bituberculate it shows a very prolonged costate stage. From the absence of bituberculation and the suspicion of carination like *Echioceras*, it may be adjudged a primitive series of Echioceratidæ. But if the carination be accidental or transient, and if carinate descendants be not produced, then it should be reckoned as a primitive Liparoceratid.

#### Genus, DEFOSSICERAS, nov.

Type, *Am. defossus*, Bean-Simpson (see No. 76).

Serpenticones similar to *Oistoceras*, with similar tongue-like costæ on the venter, but these are joined to a rudimentary carina.

The ribs on the inner whorls are coarse and distant, instead of small and approximate; later ribs are slightly curved on the lateral area instead of straight. The whorls themselves are squared instead of roundish, thickest about the inner margin, which is fairly defined. There is a feeble tuberculate stage, but no sign of bituberculation and swollen whorls, as in *Oistoceras*.

The suture-line, though simple, differs much from that of *Gagaticeras* in having a small  $L^1$  close to outer edge of whorl, just inside geniculæ, and a broad  $S^1$  which is carried well forward.

The confusion of *Am. defossus* with *Am. maculatus* (SIMPSON, 1843, 15), Blake's figuring of *Oistoceras omissum* as *Ægoceras defossus* (1876, VIII, 9, p. 282), his remarks as to the similarity to "*Amaltheus spinatus*" (p. 282), and the likeness of *Am. defossus* to *Beaniceras*, species of which have been confused with *Am. capricornus (maculatus)*, all indicate that this genus shows a curious combination of characters: it begins like a Liparoceratid and becomes like an Amaltheid—*Paltoleuroceras*.

The beginning in *Am. defossus* is similar to that of *Beaniceras luridum* (No. 73); The venter with linguiform costæ is like *Oistoceras*; the breaking up of the costæ on the venter is similarly seen in *Oistoceras* and *Beaniceras*. The carination of the periphery and other small features distinguish it from these genera, but liken it to *Paltoleuroceras*, which, however, shows much more peripheral projection.

The likeness of *Am. defossus*, with its simple and distinctly Arietan suture-line to species of *Agassiceras*, is even more remarkable; but this does not seem to have attracted attention. Yet that is the genus which casual examination would suggest for *Am. defossus*. Differences of ornament appear to be trivial: they are only important as indices of development. There is a stout costate instead of a smooth larval stage, there is a slight lateral curvature of ribs, and linguiform flattened costæ on the venter connected by a slight keel, not of continuous strength, as distinct from the median continuous keel of *Agassiceras*, which is joined by single ribs. The general likeness is an example of cyclical homœomorphy: *Agassiceras* is anagenetic—smooth to tuberculate; *Defossiceras* is catagenetic, presumably past the acme of the tuberculate stage.

The explanation of this genus would appear to be thus:—It has a Liparoceratid origin, starting from a stock similar to *Beaniceras*, from a tuberculate cadicone, and it develops its feature of carination, repeating the distinction which parted the Echioceratidæ from the primitive Liparoceratidæ. It suggests that *Paltoleuroceras*, and hence the Amaltheidæ may be other carinate developments of Liparoceratid origin—that the coronetted cadicone of their ontogeny (BUCKMAN, Q.J.G.S. 1889, XLV, 652) indicates an ancestor similar to *Beaniceras centaurus*, d'Orbigny sp.

If the Amaltheidæ are another stock which, like the Echioceratidæ, part from Liparoceratids by development of carination, then *Defossiceras*, though Liparoceratoid in early whorls, should, from its carination, be included in the Amaltheidæ as an ally of, but more primitive than, *Paltoleuroceras*.

Genus, MERCATICERAS, nov.

Type, *Ammonites mercati*, Hauer, 1856, XXIII, 6, 7

Like *Hildoceras*, Hyatt, in form, with simple, broad lobed suture-line, but distinct because radial curve has much less lateral flexure, and there is no lateral furrow. Like the subflexiradiate series of *Pseudogrammoceras*, S. Buckman, in radial curve, but distinct because of simpler suture-line, and more pronounced furrows on the venter.

To *Pæcilomorphus*, S. Buckman, there is some likeness; but in that genus the radial line is more flexed laterally, ribs are often conjugate, the furrows on venter are smaller, and the suture-line is somewhat more developed. There is, too, an important difference in morphic development: *Mercaticeras* is passing from involute to evolute, *Pæcilomorphus* is reversing the process.

HAUER, 1856, XXIII, 4—9, figured three species: of these the form in 6, 7, may be selected as species and genotype; that in 8, 9, may be styled *M. involutum*, that in 4, 5, *M. umbilicatum*.

RENZ, 1905, x, 2, figures as *Hildoceras mercati*, var. *hellenica*, a form which is very distinct on account of its heavy ribbing.

Genus, AMAUROCERAS, nov.

Type, *Am. ferrugineus*, Simpson

Like *Amaltheus*, but without a crenulate carina; in fact, barely carinate, the venter being merely sharpened. It is feebly rostrate, and shows only fine lineate ornament. Suture-line not unlike that of *Amaltheus*. *Am. lenticularis*, Young & Bird, Y.T.A. 20, ought perhaps to be placed here. The genus may be a degenerate series of the Amaltheidæ. Derivation, from *ἀμαυρός*, dark.

Genus, TRACHYLYTOCERAS, nov.

Type, *Am. nitidus*, Young & Bird, No. 86.

Small Lytoceratids with small, plain, rursiradiate rib-like rings. Such rings are presumably developments of hair-like lines, and in catagenesis a return to the same lineate ornament and then to smoothness is to be expected.

This genus is near to *Derolytoceras*, Rosenberg, 1909, but is distinguished by rursi- instead of prorsi-radiation, less massive costæ and more massive whorls. The two genera would appear to be offshoots of the same stock, and *Derolytoceras* is the first to appear.

The genus is somewhat like *Pachylytoceras*, S. Buckman, 1905, 144; but the rings are distinct and rib-like: they are not heavy corrugations. Derivation, *τραχύς*, rough.

#### Genus, TILTONICERAS, nov.

Type, *T. costatum*, nov.

Platycones like *Vacekia*, S. Buckman, with excessively long peripheral projection of radial line. Carina very prominent, but on cast small. Septicarina? no partition-band or impression seen. Carina filled with callus? Carina in costate species notched at intervals by continuation over it of intercostal depression; in striate stage notches approximate and subcrenulation is developed.

Distinct from *Vacekia* by having hardly any lateral curve of radial line and by lacking a tabulate periphery.

The genus is erected for the series of *Harpoceras acutum*, Tate (Wright).

*T. costatum* differs from *T. acutum* in being more distinctly and strongly costate: it gives the radial line more clearly. The genotype will be figured at an early opportunity.

Family Hildoceratidæ. Name from Tilton, Leicestershire, the locality of the genotype.

#### Genus, ELEGANTULICERAS, nov.

Type, *Am. elegantulus*, Young & Bird

Like *Tiltoniceras*, but rostration much less, and carina smaller. Septicarina suggested by type: in *Am. ovatulus*, Simpson, mark of partition-band is distinct.

There is superficial likeness to *Tiltoniceras*. It is important geologically to mark the differences, as this series occupies another and higher horizon.

#### Genus, ELEGANTICERAS, nov.

Type *E. pseudo-elegans*, nov.

Like *Elegantuliceras*, but radial line more rostrate, and more curved laterally; ribs broader; carina less defined.

The genus is for the series of *Am. elegans*, Young & Bird, 1822 (non Sowerby, and non Y. & B. 1828) = *E. pseudo-elegans*, nov. An example which will be figured to be type of genus and species.

This genus and *Elegantuliceras* differ from *Pseudolioceras* by having ribs which are true costæ, not striicostæ: in *Pseudolioceras* a costate stage on outer area is associated with a striate stage on inner part. Further, in these genera a complete striate stage is developed while the umbilicus is still gradate.



Genus, ECHIOCERAS, BAYLE

1878, Explic. Carte Géol. France, IV, Explan. Pl. LXXVII

Type, *E. rarecostatum*; Bayle, now *E. raricostatoides*, Vadasz sp.

Serpenticones which develop carination. The nepionic stage with small close-set ribs is a distinctive feature: it suggests derivation from a densiparvulicostate capricorn like the costate (neanic) stage of *Bifericeras*. List of species pp. 96c, d; but further division may be possible. Some forms have broad, short lobes like *Gagaticeras*, but not its style of larval ribbing; others have somewhat narrow, long lobes—*E. cereum*, Y.T.A. 49.

*Am. raricostatus*, Zieten, is presumably not an *Echioceras*.

Genus, PARECHIOCERAS, nov.

Type, *Am. finitimus*, Bean-Blake, Y.T.A. 100.

Serpenticones like *Echioceras*, but the nepionic stage has bead-like ribs of *Gagaticeras* pattern, indicating origin different from *Echioceras*. Suture-line is of *Gagaticeras* pattern. Keel is developed at an early stage, joining up ribs V-shaped on periphery—features of distinction from both *Echioceras* and *Gagaticeras*. Family, Echioceratidæ.

Genus, PROCERITES, SIEMIRADZKI

1898, Mon. Perisph. 78.

"Grosse formen welche sich an *Per. procerus* und *Per. congener* anschliessen."

No type selected here or in pp. 303 et seqq.; but from name, *Am. procerus*, Seebach (Siemiradzki), should be type. Development stated to be from *Stephanoceras zigzag*; but that species is not described as a species of *Procerites*.

Genus, ZIGZAGICERAS, S. BUCKMAN.

1902, Emend. Amm. Nom. 7.

"Type. *Am. zigzag*, d'Orb." Should now be restricted to the stouter form, Pl. CXXIX, 11, to be followed by *Z. crassizigzag*, S. Buckman sp., (1890, XIV, 2, 3). This genus would then mark massive species with long-continued *zigzag* pattern, followed by their stout macrocephaloid developments, while *Procerites* would denote the compressed series, which soon lost the *zigzag* pattern. Intermediate series may yet require separation, for *zigzag* is a trunk from which arose many branches. At different times these acquired planulate (or perisphinctean) style of ornament (catagenesis from 5 to 4), correlated, however, with differences of thickness, involution, etc.

Genus, HAUGIA, S. BUCKMAN

1888, Mon. I.O. Amm., p. 45, note 3.

"Type *Am. variabilis*, d'Orbigny, Ceph. pl. 113, figs 1, 2."

Genus, DENCKMANNIA, S. BUCKMAN.

1898, Mon. I.O. Amm.; Sup. p. xvii

Type: *Denckmannia tumefacta*, sp. n."

## Genus, PELECOCERAS, HYATT

1867, Foss. Ceph. ; Bull. Mus. Comp. Zool., p. 98.

Only one species mentioned, *P. attenuatum*, Hyatt, of which there were several specimens (and perhaps different species), for it is quoted from two collections and three localities. HYATT wrote "*Pelecoceras attenuatum*, Hyatt, is, if not identical, very similar to the *Am. malagma* of Dum." (S. BUCKMAN, Mon. 1890, 225).

If this be sustainable, the name would serve for the series of Hauginæ ranged as I, A, B, γ. (S. Buckman, Mon. 1898, p. x).

## Result

Genus, PELECOCERAS, Hyatt, 1867. Genotype *P. attenuatum*, Hyatt, a species insufficiently known, said to be similar to *Am. malagma*, Dumortier.

## Genus, PHYMATOCERAS, HYATT

1867, Foss. Ceph. ; Bull. Mus. Comp. Zool. pp. 88, 97, 98.

In p. 88 one species, *P. robustum* Hyatt, described ; in p. 97, 98, another species, *P. enervatum* Hyatt described, and *P. robustum* is mentioned.

In 1897 HYATT stated in a letter, "The *Phymatoceras robustum* is the young of *Am. tirolensis*, Dum. Pt. iv, Pl. xxiv." S. BUCKMAN 1898, p. xxx, quoted this, and took it as type of the genus on this assertion. There are, however, points in the generic definition and specific description which make the identification seem doubtful.

## Result

Genus, *Phymatoceras*, Hyatt, 1867. Type *P. robustum*, Hyatt, stated to be young of *Am. tirolensis* ; Dumortier, non Hauer.

## Genus, HILDOCERAS, HYATT

1867, Foss. Ceph. ; Bull. Mus. Comp. Zool. p. 98.

Two species are given and four references. The character "ribs large and broad" though not generic shows what form Hyatt had most in mind. Rather heavy ribs characterize the figure named by Bruguière. S. BUCKMAN, Mon. 1888, III, says "Type—*Hildoceras bifrons*, Bruguière sp.," though the identification was general rather than particular. Now it may be restricted to Bruguière's actual form.

## Result

Genus, HILDOCERAS, HYATT, 1867. Genolectotype, *Am. bifrons*, Bruguière.

## Genus, BURTONIA, S. BUCKMAN.

1910, Jur. Amm. ; Quart. Journ. Geol. Soc. LXVI, 97.

Type, the species figured and described, *Burtonia crassornata*, S. Buckman ; but the name fails from prior use.

## Genus, BREDYIA, S. BUCKMAN

1910, Abstracts Proc. Geol. Soc. London, No. 896, p. III.

Substituted for *Burtonia*. Genotype, *Burtonia crassornata*, S. Buckman.

Genus, OVATICERAS, nov.

Type, *Am. ovatus*, Young & Bird 1822 (Y.T.A. CX1A)

Like *Harpoceratoides* (Y.T.A. I, ii) but with less developed suture-line—the lobes being shorter and simpler; with inner margin rounded off, progressively flattening; and with radial curve less bowed laterally, though ultimately becoming more bowed and much more rostrate. Distinct from *Eleganticeras* (Y.T.A. II, viii) by inner margin, radial line and suture-line.

Genus, QUENSTEDTOCERAS, HYATT

1876, Gen. *Stephanoc.*; Proc. Boston Soc., xviii, p. 390.

"*Quenstedioceras Leachii*." No description, the name only casually referred to. "Hyatt first wrote *Quenstedioceras* . . . this is evidently a printer's mistake. The correct spelling of the name is *Quenstedtoceras* and not *Quenstedticeras*," Pompeckj (Jur. Fauna; Norwegian North Polar Exp., II, 1899, p. 96, footnote). Hyatt obviously intended -*oceras* not -*iceras*, and the original should be followed when not an evident printer's error. The species referred to is *Ammonites Leachi*, J. Sowerby.

Result

Genus, QUENSTEDTOCERAS, Hyatt, 1876: Type, *Q. leachii*, Hyatt, (*Am. leachi*, J. Sowerby, Min. Conch., Aug. 1819, CCXLII, f. 4.).

Genus, STEPHEOCERAS, S. BUCKMAN

1898, Jurassic Time; Quart. Journ. Geol. Soc. LIV, pp. 454, 455.

"This is only an alteration of the name *Stephanoceras*, because that was pre-occupied when proposed by Waagen. The type species, however, remains the same—namely, *Stepheoceras Humphriesianum* (Sow.)" (p. 454). The description then proceeds to detail the characters of the *Humphriesianum*-group; and ends "To one series of [what have been called *Stephanoceras*], the *Humphriesianum* group, the name *Stepheoceras* is now appended, in lieu of *Stephanoceras*;" p. 455. Any doubt which might arise as to the exact species of so-called "*Stepheoc. Humphriesianum*" which should be the type—for the description shows that the name was used in a general not in a particular sense—was set at rest by Mascke: he chose "*Am. Humphriesi[anus]* Sow." as type (*Stephanoceras*; Inaug. Diss. Göttingen, 1907, p. 34).

Robert Douvillé, however, in 1912 (Cardioc.; Mém. Soc. Géol. France, xix (2), p. 28) argues that the type of the genus *Stepheoceras* must be *Am. coronatus*, on the ground that this is the type indicated by the etymology of *Stephanoceras*, that it was chosen by Henri Douvillé in 1890, and that *Stepheoceras* replaces *Stephanoceras*. But even if one were to admit the first two of these premises in regard to *Stephanoceras*, they do not affect the type of *Stepheoceras*. It may not have been desirable to consider *Am. humphriesianus* as the type of *Stephanoceras*; but, at any rate, it was so taken. And then the name *Stepheoceras* was definitely proposed for the *Humphriesianum* group with *Stepheoc. Humphriesianum*

in a wide sense as type. *Stepheoceras* only replaces *Stephanoceras* in regard to the *Humphriesianum*-group. It is quite incorrect to take as type of my genus a species not only not referred to in the description, but actually excluded by me from my genus; for the species is particularly placed by me as a *Cæloceras*,—"C. coronatum," p. 454.

#### Result

Genus, STEPHEOCERAS, S. Buckman, 1898; Genosyntypes *Stepheoc. humphriesianum* Sow. in general; Genolotype, "Am. Humphriesi[anus] Sow.," [=J. de C. Sowerby, Min. Conch., Sept. 1825, Pl. D, f. 1, large specimen], Mascke, 1907, p. 34.

#### Genus, CHAMOUSSETIA, R. DOUVILLE

1912, *Cardiocératidés*; Mém. Soc. Géol. France, xix (2), p. 19.

"Type du Genre: *Ammonites Chamouseti* d'Orb., d'Orbigny: Paléontologie française, terrains oolitiques ou jurassiques, p. 437-438, pl. 155; 1847."

D'Orbigny wrote *A. Chamouseti*; but Douvillé says "dédiée au géologue savoisien Chamouset," and so the alteration is justified.

#### Genus, LYTOCERAS, SUESS

1865, *Ueber Amm.*; Sitz. Nat.-Wiss. Cl. Wiener Akad. LII, 78.

"*Lytoceras* (Λυρος, gelöst) . . . Als den Typus dieser Gattung sehe ich *Lyt. fimbriatum* Sow. an"

It may be doubted if Suess correctly identified Sowerby's species any more than other authors have. Zieten and Hauer went far astray. D'Orbigny was reasonably near, so was Wright, while Pompeckj (Rev. Amm. Schwäb. II, 1896, p. 112) and S. Buckman (Q.J.G.S., LXI, 1905, p. 143) both accepted the figures of d'Orbigny and Wright as representing Sowerby's species. All this is wrong. Even Vadász (Jurasch. Bakony, Wiss. Erforsch. Balatonsees I (1) 1910, p. 73) who gives d'Orbigny's and Wright's figures as synonyms of *Lytoc. postfimbriatum*, Prinz-Vadász, failed to note the real difference. No figures in literature yet given agree with the form delineated by Sowerby, so far as I am aware: I have seen his type. All these errors show that Suess can hardly have succeeded where others failed. It is reasonable, then, to take the figures of *Am. fimbriatus* in existence at the time he wrote as genosyntypes of his genus and from these to select *Am. fimbriatus*, d'Orbigny, as genolotype since it is the nearest to Sowerby's, though doubtfully even congeneric. This follows Wright who gave, as the typical species of *Lytoceras*, a woodcut of d'Orbigny's figure (Mon. Lias Amm. 1880, p. 243, 1883, p. 406).

#### Result

Genus LYTOCERAS, Suess 1865; Genotype, *Lytoceras fimbriatum* (Sow.) Suess = *Am. fimbriatus* Sowerby, Zieten, Hauer, d'Orbigny, etc, genosyntypes. Genolotype, *Am. fimbriatus*, d'Orbigny, Pal. franç. Terr. Jur., 1845, Pl. xcviij, =, teste Vadász, loc. cit., *Lytoc. postfimbriatum*, Prinz-Vadász; but it is doubtful if Wright's species is the same as d'Orbigny's and if either is the same as the *L. postfimbriatum* figured by Vadász in p. 74.

Genus, FIMBRILYTOCERAS, nov.

Type, *F. fimbriatum*, J. Sowerby sp., Plesiotype (Y.T.A. CXXX B)

*Am. fimbriatus*; d'Orbigny, being taken as genotype of *Lytoceras*, the series to which *Am. fimbriatus*, Sowerby, belongs, according to present interpretations, requires a new generic name.

*Lytoceras* has persistently a large number of strong, plain, arcuate "flares" (lamellæ) "par tour de huit à douze" (d'Orb. 314), the ribs all fimbriate, the fimbriæ being represented in his figure as strong, almost pustulose, but "le moule est entièrement lisse" (d'Orb.). Present genus shows small flares, straight and radial after the dorsal curve; plain as well as fimbriate ribs—the fimbriæ of low relief; and an ornate cast. On inner whorls, which have test, flares are numerous, small and fimbriate (or scalloped), little different from adjacent fimbriate ribs. On outer half-whorl are only two flares (or their indications—constrictions on cast). The plain ribs are more or less connate and alternate with the fimbriate, and there are occasional short intercalate plain ribs on periphery, extending more or less to sides.

In Pl. CXXX A the original figure of *Am. fimbriatus*, Sow., is reproduced and a plaster cast of a plasticine impression to show style of ornament—photographs  $\times 2$ . It has remains of one flare, presumably plain and not very prominent. Owing to the regulations of the Oxford University Museum, photographs of this specimen could not be obtained.

In Pl. CXXX B are reproduced photographs of a topotype, nat. size and enlarged.

Pl. CXXX C illustrates an older example, a topotype, last one-third of body-chamber lacking test. There are many old-age changes—flares have become numerous—four; and fimbriate ribs are crowded in places, distant in others, obsolescent except on periphery; longitudinal lineation is acquired, especially on periphery, causing plain ribs to appear incipiently fimbriate.

Family, PACHYCERATIDÆ, nov.

Cadicones (more or less coronate) declining to platycones and retaining ribs—smoothness and excentrumbilication later. Genera, *Erymnoceras*, *Pachyceras*, *Macrocephalites*, *Tornquistes*. Cone-development opposite to that of Cadoceratidæ, Hyatt. Possibly connected with Stepheoceratidæ in a wide sense, that is, to Bajocian Coronates.

Family, CADOCERATIDÆ, Hyatt, 1900.

Syn. Cardioceratidæ, R. Douvillé, 1912, pars (H. Douvillé 1890, not technically published ?)

Costate serpenticones (and platycones) which develop inflation in varying degree, from feeble swelling up to cadicones or sphærocones; catagenetic features like loss of ribs and excentrumbilication occur during (or before ?) this stage. In some series venter develops to flatly arched with straight ribs; others show varying degrees of rib angulation along median lines of angulate or arching venter, making more or less of crenulate carina, sometimes very strong—producing almost homœomorphs of *Paltopterocheras*. Some genera finish in inflated stage; others carry on decline to oxycone, producing in some cases homœomorphs of *Amaltheus*. Varying degrees of inflation, umbilication, peripheral development, with style of costation and septal development furnish characters for many genera. At present named, *Cadoceras*, *Quenstedtoceras*, *Chamoussetia*, *Cardioceras*, *Amœoboceras*: many more required. Possibly connected with Oppelidæ.

## Genus, PSEUDOCADOCERAS, nov.

Type, *Am. longævus*, Bean, Syntype = *P. boreale*, Y.T.A. CXXI B  
Syn. *Cadoceras* pars, Auctt. The *Grewingkii*-series, S. Buckman, 1913, 162.

A Cadoceratid series like young *Cadoceras*, but not developing cadicone stage, only feeble inflation: the catagenetic feature of excen-trumbilication, commencing almost as soon as swelling, would prevent any cadicone development. [Suture-line (d'Orbigny, 1848, CLXXIX, 9) rather simple, L<sup>1</sup> same length as EL, L<sup>2</sup> short and broad].

## Genus, LONGÆVICERAS, nov.

Type, *Am. longævus*, Bean, Lectotype, Y.T.A. CXXI A

A Cadoceratid series like *Pseudocadoceras* but prorsiradiate, attaining only to feeble swollen stage. Develops oxycone?

R. Douvillé (1912, p. 21) reckoned *Am. galdrynus* as a *Chamoussetia*, but its lack of inflation indicates a different stock. It is an involute development either of present genus or of a parallel series; for this one may end without developing keel. *Am. funiferus*, Phillips, 1829, VI, 23, is prior name for *Am. galdrynus*.

## Genus, EBORACICERAS, nov.

Type, *A. dissimilis*, Brown, Holotype, Y.T.A. CXVIII A

A Cadocerated series which develops considerable inflation but does not attain to cadicone. Versi-, subflexiradiate, ribs of low relief, primaries short, secondaries angulate on periphery, but straightening out in swollen stage; obsolescence follows. L<sup>1</sup> rather narrow-stemmed, longer than EL, L<sup>2</sup> quite short, rather broad (cf. d'Orbigny, CLXXVI, 3). Eboracum, York.

## Genus, PRORSICERAS, nov.

Type, *Am. gregarius*, Leckenby, Lectotype, Y.T.A. CXVII A

A Cadoceratid series swelling in serpenticone stage, presumably not attaining inflation of *Eboraciceras* by some 10 per cent. Marked prorsiradiation. Well-developed arcuation of ribs on narrowish rounded venter. Whorls convergent. Suture line with rather short broad lobes, L<sup>1</sup> about as long as EL, L<sup>2</sup> fairly developed.

*Chamoussetia*, which is much earlier in date, has remains of similar prorsiradiation. Apart from date it could not be involute development, for present genus gives no signs of attaining the much swollen galeatiform whorl with distinct carination.

## Genus, VERTUMNICERAS, nov.

Type, *Am. vertumnus*, Leckenby, Holotype, Y.T.A. CXVI A

A Cadoceratid series distinguished by coarse subflexicostæ which are strong on venter, where they form a herring-bone pattern rising to a slight discontinuous ridge. (Suture-line with long L<sup>1</sup> and quite short L<sup>2</sup>, *V. spatiatum*, Pl. CXVI c).



Genus, CADOCERAS, FISCHER

Man. Conchyl. et Pal. Conch. (1880-1887), Fasc. iv, p. 394, May 5, 1882.

"Coquille très renflée; ombilic étroit, caréné; dernier tour entièrement lisse. Tours précédents avec des côtes formant un angle dirigé en avant sur la région ventrale. Ex. *C. modiolare*, Luid."

Originally proposed as a subgenus of *Stephanoceras*.

Type to be taken as *C. modiolare*; Fischer; for there is nothing in d'Orbigny's figure and description of "*Am. modiolaris*, Luid." to indicate character of ribs on whorls preceding smooth stage. There are two series of *modiolaris*-like adults—one with preceding whorls conforming to Fischer's diagnosis, the other with these whorls carrying ribs straight across periphery. The type of *Cadoceras* must be a *modiolaris*-like form of the first series—a specimen with Fischer's label, if such exist.

Genus, ANISOLOBOCERAS, TRUEMAN

1918, Abs. Proc. Geol. Soc., p. 66.

"Genoholotype, *Ammonites nautiliformis*, J. Buckman"

Sufficient of the suture-line of *Am. nautiliformis*, Holotype, Pls. XXXVII A, B, has now been exposed to show abbreviated EL and very long L<sup>1</sup>, of which outer branch encroaches on EL territory.

Inscribe Pls. XXXVII A-D *Anisoloceras nautiliforme* and make similar corrections in text.

Genus, AMAUROCERAS, S. BUCKMAN

1913, Y.T.A. II, p. vii.

Place *Am. lenticularis*, No. 20, here and make suitable alterations.

Genus, FISSILOBOCERAS, nov.

Genoholotype, *F. fissilobatum*, Waagen sp., S. Buckman Coll. No. 554, Bajocian, [Shirburnia, Sandford Lane], Sherborne, Dorset, which will be figured at an early opportunity. Like degenerate (smooth) *Euhoploceras* (Y.T.A. II, 1913, iv) but more involute, with more intricate suture-line and L<sup>1</sup> has very anisosceles terminal lobule.

Family, CYMBITIDÆ, nov.

Primitive Arietans with ceratitoid suture-line. *Cymbites*, *Paroniceras*, *Frechiella*; *Hudlestonia*?

Family, DACTYLIOCERATIDÆ, nom, nov.

In place of Dactyloidæ, error for Dactylioidæ, Hyatt, as more conformable to rule.

## ZOOLOGICAL SYNOPSIS

(Pls. I-CXXX. In presumed natural order—I-IV, simple to complex. Based largely on the masterly works of Branco & Hyatt.)

## IV, Suborder, PHYLLOCAMPYLI, Hyatt

Saddles phylloid.

## 3, Superfamily, PSILOCERATACEA

Phylloid saddles soon lost; hanging lobes oblique; IL. bifid.

## 2, Superfam. LYTOCERATACEA, S. Buckman, pars\*

Phylloid SS., lost in highly specialized; IL. cruciform.

## 1, Superfam. PHYLLOCERATACEA

Phylloid SS. persistent; IL. bifid.

## III, Suborder, SCHISTOCAMPYLI

Primitive ES divided (three-celled); sut.-l. complex; hanging LL. oblique.

## 2, Superfam. STEPHEROCERATACEA

IL. pointed.

## 1, Superfam. DERO CERATACEA

IL. bifid.

## II, Suborder, STENOCAMPYLI (=Leptocampyli, Hyatt, pars)

Primitive ES. narrow, deep; oblique hanging LL. not developed; IL. pointed.

## Superfam. OPPELACEA

## I, Suborder, PLATYCAMPYLI (=Pachycampyli, Hyatt, pars)

Primitive ES. broad; LL. ceratitoid in genera with simple sut.-l.; IL. bifid.

## 3, Superfam. AMALTHACEA

(Cadicones)—serpenticones to oxycones, usually carinate. Sut.-l. often highly specialized, L<sup>1</sup> elaborate.

## 2, Superfam. LIPAROCERATACEA

Mainly capricorns to sphærocones with complex sut.-l. No carina.

## 1, Superfam. AMMONITACEA

Sut.-l. simple; L<sup>1</sup> U-shaped, ceratitoid, elaboration (trilobulation) rare. Carina, except in some primitives.

Phylloid saddles indicate rapid early specialization; but in conch-contour IV lost ground in comparison with some competitors. In II, I, oblique hanging lobes rare—only perhaps in a few oxycones with much elaborated sut.-l.

For classification of Families and Genera, see Zoological Analysis, Appendix, p. B.

\* Jur. Amm.; Geol. Mag. (4) I, (1894), 298.

# YORKSHIRE TYPE AMMONITES

EDITED BY

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The original descriptions reprinted, and illustrated by figures of the types  
reproduced from photographs mainly by

J. W. TUTCHER

## Part IX

Pages v-x, *i-iv*

10 Plates, and Descriptions Nos. 68—74

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68, VERMIS,

AMMONITES

DACTYLIOCERAS

68. AMMONITES VERMIS, SIMPSON  
(Plate LXVIII)

*Original Description*

" 55. A[mmonites] vermis. [M. SIMPSON, 1855, p. 51.]

[" The following species, to the end of the Section, have all a family resemblance to *A. communis* :—

" Whorls narrow, exposed, with numerous slender, annular ribs, which generally split in two on the back." p. 50.]

" Volutions slender; radii nearly obsolete on the outer whorl; aperture nearly round.—Jet-rock."

SIMPSON, 1884, 82, the same.

*Remarks*

Proportions, 30, 22, 22, 55: Substeno-, subleptogyral, sub-extremilatumbilicate.

Stages, conch, serpenticone; periphery, 1; ornament, 4 (4c?).

Umbilicus open, flat; inclusion very little; ribs numerous, feeble, bifurcate on edge of a slightly arched periphery. The periphery is much worn. There are no tubercles visible at points of bifurcation.

Genus, *Dactylioceras*, Hyatt; family, *Dactyloidea*, Hyatt.

This is a noticeable little species, because from the peripheral position of the bifurcation a side view shews merely single primary ribs.

*Result*

DACTYLIOCERAS VERMIS, SIMPSON sp. 1855, Whitbian, *exaratum* zone, [near Whitby].

Fig. 1



Fig. 2



AMMONITES VERMIS, SIMPSON, 1855  
Whitby Museum, No. 483, Holotype  
Fig. 1, Side view; Fig. 2, Apertural view

DACTYLIOCERAS VERMIS, SIMPSON SP.





*Comparable Species*

30, 22, 22, 55

*Am. braunianus*, d'Orbigny, 1845, CIV, 1, 2—F. 57, 24, 18, 57 ;  
T. 43, 24, 12, 54.

*Am. braunianus*, Dumortier, 1874, XXVIII, 5—F. 90, 23, —, 60 ;  
T. 99, 21, 16, 51 ; 88, 23, 18, 53.

See also Nos. 31, 51, 58, 62.



69. FOVEATUS,

AMMONITES

CÆLOCERAS

## 69. AMMONITES FOVEATUS, SIMPSON

(Plate LXIX)

*Original Description*

"69. A[mmonites] foveatus. [M. SIMPSON, 1855, p. 57.]

["The following species, to the end of the Section, have all a family resemblance to *A. communis* :—

Whorls narrow, exposed, with numerous slender, annular ribs, which generally split in two on the back." p. 50.]

"Thick; volutions 6, well exposed, outer whorl  $\frac{1}{3}$  the diameter, sides and back rounded; umbilicus deep; radii annular, split in two before they pass over the back, strong, scarce equal to the intervening concave furrows; aperture transverse; diameter  $1\frac{1}{4}$  inch.

"In general form this ammonite resembles *A. subarmatus*, but quite free from spines or tubercles, and the whorls diminish much more rapidly than in *A. crassus*, forming a deeper and larger umbilicus. The shell, where it remains, is of a light-brown colour and very smooth and shining; the radii are rounded, but on the cast they are flattened, especially on the back. The ramifications of the septa are obtusely pointed, and by no means so crowded as in many species. It is very pyritous, and appears to be from the lower lias."

*Additional Details*

SIMPSON, 1884, p. 89, adds to end of 1st par. "U.L.," and omits last sentence of 2nd paragraph.

*Remarks*

Proportions, 34, 30, 56, 45: Subplaty-, subextremipachygyral, perlatumbilicate.

Stages, conch, serpenticoncave; periphery, 1; ornament, 4c. The inner whorls are craterumbilicate, and appear to be coronetted, but without fibulation: tubercles lost on outer whorls. Ribs mostly bifurcate, and on venter distinctly septate ("flattened," Simpson, alluding to impressions of the partitions). Suture-line not sufficiently clear for delineation, but seems to be of the pattern of that shown by d'Orbigny for *A. raquinianus*.

Genus, *Cœloceras*, Hyatt; family Dactyloidæ, Hyatt. Geological position, presumably Alum Shale—from condition.

*Result*

CÆLOCERAS FOVEATUM, SIMPSON sp. 1855, Whitbian, [*subcarinatum* zone?] near Whitby

Fig. 1



Fig. 2.



AMMONITES FOVEATUS, SIMPSON, 1855  
Whitby Museum, No. 340, Holotype  
Fig. 1, Side view ; Fig. 2, Apertural view

CŒLOCERAS FOVEATUM, SIMPSON SP.



*Comparable Species*

34,      30,      56,      45

*Am. crassus*, Young & Bird, 1828, p. 253—

      } 72,      27,      38,      46 {  
      } 56      27      45      46 {

*Am. crassus*; Phillips, 1829, XII, 15—F. 56, 31, 50, 45.

*Am. raquinianus*, d'Orbigny, 1845, CVI, 4, 5—F. 31, 31, 58, 40.

*Am. crassus*; Meneghini, 187-, XVI, 2—F. 42, 30, 45, 41.

See also Nos. 59, 60, 61.





70. GUBERNATOR,

AMMONITES

PLEUROLYTOCERAS

70. AMMONITES GUBERNATOR, BEAN-SIMPSON  
(Plate LXX)

*Original Description*

"27. A[mmonites] gubernator, Bean's MSS. [M. SIMPSON, 1843, pp. 17, 18.]

["I. Without a dorsal keel or furrow.

"a. No spines." p. 7.]

"Depressed; volutions 4 or 5, inner ones  $\frac{1}{4}$  concealed, outer whorl not quite  $\frac{1}{2}$  the diameter, inner margin prominent, suddenly rounded; aperture ovate; diameter 3 inches.

"This is a smooth, bright shell, without radii or striae. In the rapid diminution of the whorls it resembles *A. fimbriatus*, but the [p. 18] prominence of the inner margin of the whorls, and the partial concealment of the inner ones, at once distinguish it."

*Additional Details*

SIMPSON, 1855, p. 40, omits "depressed"; 1884, 68, describes it as "*A. jurensis*, Zeit. Pal. LXXIV., f. 3" [Wright's Mon. Lias Amm.]; adds "U.L., 1, Peak."

*Remarks*

Proportions, 79, 41, 34, 31: Platy-, pachygyral, sublatumbilicate.

Stages, conch, serpenticone; periphery, 1; ornament, 1c.

There are signs of a corrugate stage in the inner whorls (S. Buckman, 1905, p. 143), and the umbilical edge (shoulder) is steep and prominent. The whorl is subtriangular, and the greatest thickness near the margin.

Genus, *Pleurolytoceras*, Hyatt, 1900, p. 572; S. Buckman, 1905, p. 143; family *Lytoceratidae*. The species is possibly a smooth catagenetic development of the *hircinum* group. If it is not, it requires a new generic name, for the umbilical edge is too pronounced and steep for *Alcolytoceras*.

Geological position, *striatulus* shales is the horizon suggested by the little matrix remaining. *Lyt. quenstedti* is from *striatulum* zone (Brasil). *A. perlaevis* is found in the *dispansum* zone of Gloucestershire and Yorkshire.

*Result*

PLEUROLYTOCERAS GUBERNATOR, BEAN-SIMPSON sp. 1843, Yeovilian [*striatulum* zone], Peak, S. of Robin Hood's Bay, near Whitby.

Fig. 1



Fig. 2



AMMONITES GUBERNATOR, BEAN-SIMPSON, 1843  
Whitby Museum, No. 69, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view



*Comparable Species*

79	41	34	31
----	----	----	----

*Lytoceras jurense* ; Wright, 1883, LXXIV, 3-5—F. 57, 43, 35, 27.

*Am. jurensis interruptus*, Quenstedt, 1885, XLVII, 6—F. 63, 43, 44,

31 ; type of

*Lytoceras quenstedti*, Brasil, 1895.

*Am. perlævis*, Denckmann, 1887, II, 5—F. 150, 40, 35, 32.

*Lytoceras wrighti* ; Benecke, 1905, XXIX—F. 195 (178), 47, —, 26.



71. SUBTRIANGULARIS

AMMONITES

DEROCERAS

71. AMMONITES SUBTRIANGULARIS, YOUNG & BIRD  
(Plates LXXIA, B)

*Original Description*

[Young & Bird, 1822, pp. 250, 327.]

"Figures 4 and 5, Pl. XII, represent fragments of two knobbed ammonites that are rare and singular. No. 4, which is from the lower part of the aluminous strata, is part of the outer whirl of an ammonite that has measured about ten inches in diameter. Its aperture or section is subtriangular, the back being not rounded, but with two acute angles, and the sides sloping inwards, especially one side, which is more strongly ribbed and knobbed than the other. The knobs on the plainest side, in this specimen, consist chiefly of galena, a substance which we noticed (p. 124) as occurring in the dogger, and which is not uncommon in the petrifications of the aluminous strata.—No. 5 is from the calcareous sandstone below the oolite, on Silphou moor. It has belonged to an ammonite equally large, and with larger ribs and knobs, placed at greater distances. The back is somewhat rounded, and that and the intervals between the ribs are striated, whereas in No. 4 they are smooth. Unless more appropriate names can be found, when entire specimens are obtained, No. 4 may be termed *a. subtriangularis*, and No. 5 *a. Silphouensis*.

"[P. 327] Plate XII. fig. 4. *Ammonites subtriangularis*. Lowest shale."

*Remarks.*

Proportions: 210, 22, 26, 53: Substeno-, subpachygyral, sub-extremi-latumbilicate.

Stages, conch, serpenticone; periphery, 1; ornament, 5\*.

The fragment happens to be not equal sided: the left side (aperture facing) is not so broad as the other. The left side is presumably what Young & Bird call "the plainest side"; but there is not much difference in the degree of ornament.

The fragment is the commencement of the body-chamber, part of the last suture-line shewing

Genus, *Deroceras* Hyatt; family *Deroceratidæ*. Geological position, according to Simpson (1855, 66; 1884, 99), "the pyritous bed near Bay-town"; it is entered in L.L. y (1884, xx).

*Result*

*DEROCERAS SUBTRIANGULARE*, YOUNG & BIRD sp. 1822, Charmouthian, *armatum* zone, [Robin Hood's Bay, near Whitby].



Fig. 1

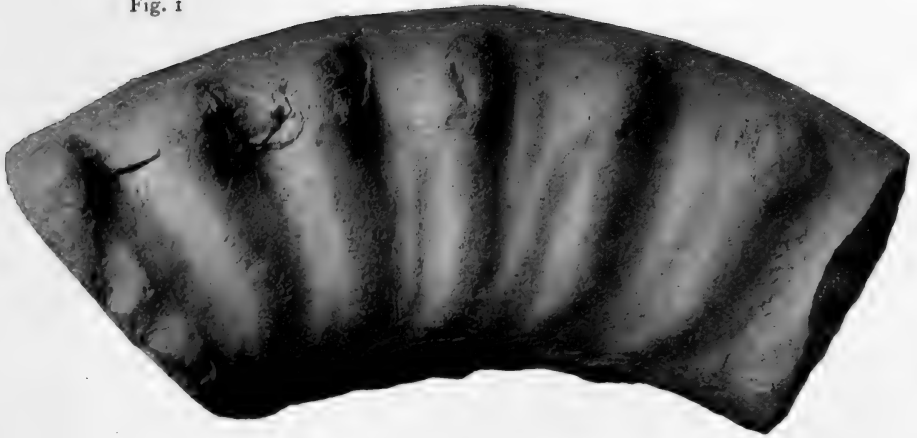
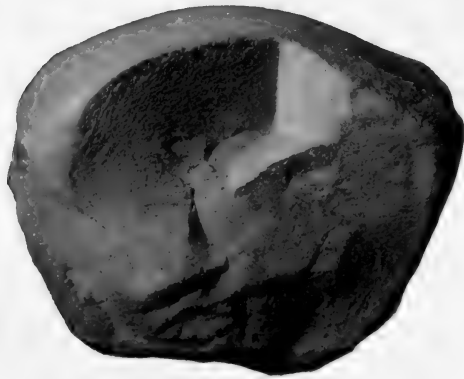


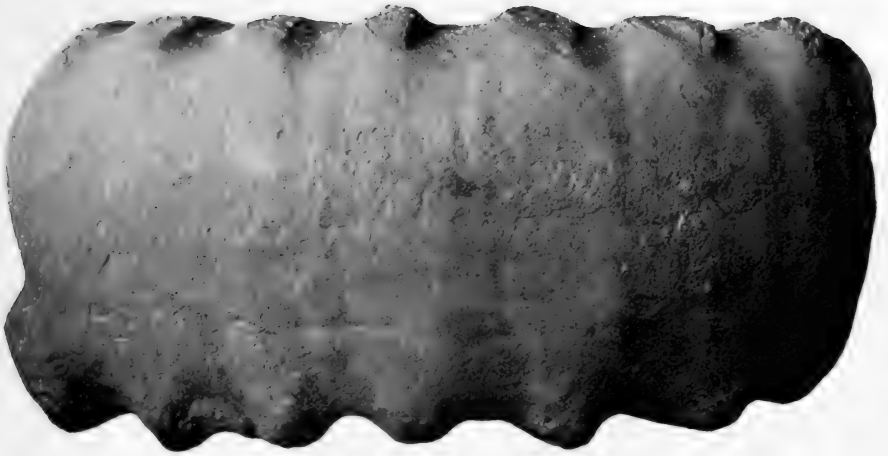
Fig. 2



AMMONITES SUBTRIANGULARIS, YOUNG & BIRD, 1822  
Whitby Museum, No. 927, Holotype—Plate XII, fig. 4  
Fig. 1, Side view; Fig. 2, Apertural view

DEROCERAS SUBTRIANGULARE, YOUNG & BIRD SP.





AMMONITES SUBTRIANGULARIS, YOUNG & BIRD, 1822  
Whitby Museum, No. 927, Holotype  
Pl. XII, fig. 4. Peripheral view

DEROCERAS SUBTRIANGULARE, YOUNG & BIRD SP.



*Comparable Species*

210, 22, 26, 53

*Am. hamiltoni*, Simpson, 1843, p. 27.*Am. pettos costatus*, Oppel, 1853, III, 9—F. 53, 26, 33, 50—type of*Am. zietenii*, Oppel, 1856, p. 165.*Am. armatus*; Oppel, 1853, I, 4—F. 123, 21, 14, 62.*Am. armiger*, Simpson, 1855, p. 66.*Am. submuticus*, Dumortier, 1869, III, XII—F. 181, 27, 26, 49.*Aegoceras submuticum*; Wright, 1880, XXVII—F. 147, 29, 34, 46.*Aeg. armatum*; Id. XXIX—F. 198, 29, —, 54.*Aeg. milleri*, Id. XXXVII, 10, 11.*Am. armatus nodogigas*, Quenstedt, 1884, XXV, 1-4, 6.*Am. armatus sparsinodus*, Id., XXV, 5.And see Nos. **44, 64, 65, 72**



72. ACULEATUS,

AMMONITES

DEROCERAS

72. AMMONITES ACULEATUS, SIMPSON  
(Plates LXXIIA, B, C)

*Original Description*

"44. A[mmonites] aculeatus. [M. SIMPSON, 1843, p. 27.]

["I. Without a dorsal keel or furrow." p. 7.

"b. Armed with spines or distinct tubercles." p. 22.]

"Volutions 6, exposed; obsoletely radiated; armed with a row of moderate, pointed spines; striæ numerous, undulating, annular; aperture circular; diameter 10 inches.

"This fine ammonite is at present in the possession of Mr. Andrew. A smaller specimen in the Whitby Museum (diameter 7 inches) displays the edges of the septa, which are exceedingly fine and intricate; some are pointed, others are rounded, crowding the whole surface of the whorls with their delicate meanderings."

*Additional Details*

SIMPSON, 1855, 66, leaves out first sentence of 2nd paragraph. Begins second sentence, "The edges of the septa are exceedingly fine and [and] intricate," and continues as 1843. Adds for 3rd par. "They vary much in the length and number of the spines.—Brassy Bed L.L.; R.H. Bay."

SIMPSON, 1884, 99, the same as 1855, except that last seven words are placed after 1st par. Misprint corrected.

*Remarks*

Proportions:— 180, 31, 35, 43 }  
80, 33, 36, 43 }

Subplaty-, pachygyral, perlatumbilicate.

Stages, conch, serpenticone; periphery, 1; ornament, 5\*.

To diameter 14 mm. imperfect; to about 22 mm. *pettos* form, closely spinicostate; to 125 mm. squared whorls, parvicostate, much prorsiradiate; with irregular small spines, increasing in size with age; onwards, whorls becoming somewhat divergent, costæ wave-like and rarer, but not prominent, carrying large spines. All spines septate, the large leave large plate-like markings (basal septa). Periphery flatly arched, costate. Suture-line very highly complicated, not well exposed.

Genus, *Deroceras*, Hyatt; family Deroceratidæ. Geological position, Brassy Bed is presumably L.L. y (1884, p. xx).

The specimen, No. 177, is the paratype described by Simpson. Search for the large example, which may have been sold away from Whitby by Mr. Andrew, is hereby requested.

*Result*

DEROCERAS ACULEATUM, SIMPSON sp. 1843, Charmouthian, *armatum* zone, Robin Hood's Bay, near Whitby.





AMMONITES ACULEATUS, SIMPSON, 1843  
Whitby Museum, No. 177, Paratype. Side view

DEROCERAS ACULEATUM. SIMPSON SP.





AMMONITES ACULEATUS, SIMPSON, 1843  
Whitby Museum, No. 177, Paratype. Side view,  $\times 0.6$

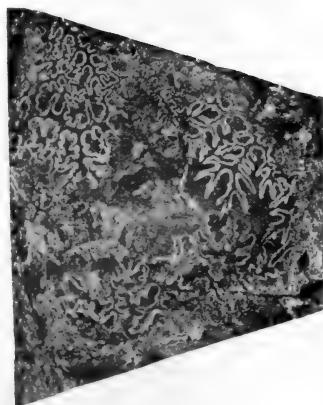
DEROCERAS ACULEATUM, SIMPSON SP.



Fig. 1



Fig. 2



AMMONITES ACULEATUS, SIMPSON, 1843  
Whitby Museum, No. 177, Paratype  
Fig. 1, Apertural view ( $\times 0.6$ ) ; Fig. 2, Suture-lines (Nat. Size)



*Comparable Species*

180, 31, 35, 43

*Aegoceras leckenbyi*, Wright, 1880, xxx, 1-3—F. 80, 33, 37, 43 ;  
4-6—F. 85, 33, 39, 41.

And see Nos. **44, 64, 65, 71.**





73. LURIDUS,

AMMONITES

BEANICERAS

73. AMMONITES LURIDUS, SIMPSON  
(Plate LXXIII)

*Original Description*

"39. A[mmonites] luridus. [M. SIMPSON, 1855, p. 46.]

["I. Without a dorsal keel or furrow.

"a. No spines. p. 35.]

"Thickish; volutions 5, exposed, outer whorl more than  $\frac{1}{4}$  the diameter; radii sharpish, strong, annular, rather depressed on the back, where they bend towards the aperture, separated by widish spaces; a few annular striæ; aperture little more than a semi-circle; diameter  $1\frac{3}{4}$  inch."

"The whorls of this ammonite diminish very little in width, forming a shallow umbilicus. The shell is thick, and formed of several layers, of a brown colour.—Mr. Leckenby's Col."

SIMPSON, 1884, 76, the same.

*Remarks*

Proportions:  $\left\{ \begin{array}{cccc} 50 & 27 & 34 & 46 \\ 27 & 30 & 48 & 45 \end{array} \right\}$

Subplaty-, perpachy- to pachygyral, perlatumbilicate.

Stages, conch, serpentine; periphery, 1; ornament 4c with suggestion of (obsolescent?) 5\*. The species is presumably in the post-tuberculate costate stage: the single lateral costæ shew a suspicion of tuberculation on the latero-peripheral edge,—the tubercle can hardly be seen, but it can be felt with the finger.

The species must be a cadicone in youth, up to about 6 mm. diameter, the whorl being depressed, stout, the umbilicus narrow, deep. Later, the umbilicus flattens out, while increase in actual thickness of whorl is slow (proportionately, the decrease in the last whorl is 14 per cent.)

On the periphery the primary costæ break up into 3 or 4 very obscure secondary costæ, the first of which has only a slight forward sweep, the next has more curvature, and the last of the bunch has the most. The breaking up begins on edge of periphery, but sometimes a little earlier.

The specimen depicted has the body-chamber almost complete, about half a whorl. The suture-line is noticeable for the distinct A character of the cell parting the peripheral or external lobe. The inner part of the suture-line is not retracted.

Genus, *Beaniceras*, nov. (II, iii); family Liparoceratidæ. Geological position doubtful: the deep brown colour of the test is unusual for Yorkshire specimens. BLAKE, 1876, 281, placing it as a synonym of *Aeg. capricornum*, indicates his opinion that it occurs towards the top of the Charmouthian. A specimen from Stow-on-the-Wold, Gloucestershire, (purchased), is from ochraceous Lias; specimens of other species of the genus are from yellow Lias of [Hewletts' Hill, near] Cheltenham, about *striatum* zone.

For this species and homœomorphy see II, vi, iii.

*Result*

BEANICERAS LURIDUM, SIMPSON sp. 1855, [Charmouthian, circa *striatum* zone? near Whitby].

Fig. 2

Fig. 1

Fig. 3



Fig. 4

Fig. 5.



AMMONITES LURIDUS, SIMPSON, 1855  
 Sedgwick Museum, Cambridge (Leckenby Coll.), Holotype  
 Fig. 1, Side view; Fig. 2, Peripheral view; Fig. 3, Apertural view  
 Figs. 4, 5, Suture lines ( $\times 2.5$ )



## Comparable Species

{ 50,	27,	34,	46 }
{ 27,	30,	48,	45 }

*Am. centaurus*, d'Orbigny, 1844, LXXVI, 3-6—T. 18, 35, 55, 35, F. 18, 39, 60, 40.

*Am. centaurus*; Quenstedt, 1847, XIV, 9 c-e—F. 11, 40, 77, 27; 9 a, b.

*Am. centaurus*; Oppel, 1853, III, 8—F. 18, 32, 51, 40.

*Am. centaurus*; Quenstedt, 1857, XVI, 16—F. 15, 35, 60, 35.

*Am. ragazzonii*, Hauer, 1861, [1], 16, 17—T. 25, 30, 35, 46.

*Am. pettos*; Id. [1] 18, 19—F. 17, 35, 60, 40.

*Am. coquandi*; Dumortier, 1869 (III), XVIII, 5, 6—F. 18, 35, 35, 39.

*Aegoceras pettos*; Wright, 1880, XXXVII, 5-7—F. 33 (63), 26, 45, 50.

*Am. centaurus*; Quenstedt, 1884, XXXIV, 30-40—37. F. 15, 35, 60, 30; 38. F. 20, 31, 50, 37; 40. F. 24.5, 31, 50, 42.

*Aegoceras capricornum*; Geyer, 1893, III, 7—F. 31, 30, 31, 42; 8—F. 25, 35, 41, 41; 10—F. 18, 39, 46, 41.

*Aegoceras centaurum*; Id. III, 11—F. 25, 35, 48, 36; 12—F. 21, 35, 44, 40.

See also Bettoni, Foss. Dom. (Pal. Suisse), 1900, several forms under *Cæloceras*,—*C. ragazzonii*; *C. r.* var. *tardevoluta*; mut. *multicosta*, etc.; with dimensions p. 74:—*tardevoluta*, 24.5, 26, 34, 48; mut. *inflata*, 20.5, 29, 51, 46; mut. *multicosta*, 19.5, 25, 38, 46.



74. NITESCENS,

AMMONITES

SEGUENZICERAS

74. AMMONITES NITESCENS, YOUNG & BIRD  
(Plate LXXIV)

*Original Description*

[YOUNG & BIRD, 1828, p. 257]

"Sowerby's *A. striatulus*, Tab. 421.1, is found in similar nodules [to *A. semicostatus*] at Peak, and has been recently discovered in the Glazedale dogger. We have known it for some years, and given it the name *A. nitescens*, from its smooth, shining aspect. It has a blunt keel; aperture oval; sides marked with faint sigmoidal ribs, and slight striæ of the same form.—There is a rare ammonite in the lias bands, nearly corresponding with this in shape, but flatter on the back, having only a faint appearance of a keel; and smoother also on the side, the shell being without striæ. The name *A. nitescens* may now be appropriated to this last species."

*Remarks*

Proportions, 93, 29, 21, 44: Subplaty-, subleptogyral, perlatumbilicate.

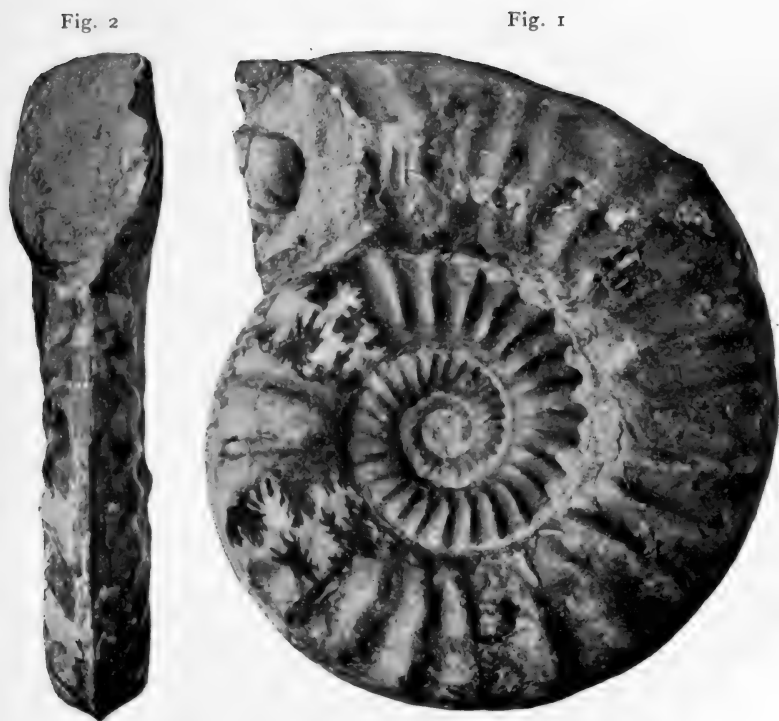
Stages, conch, serpenticone; periphery, 4C, slight depression each side of a small keel; ornament, 5\*; coarse distant ribs, each with a blunt nodus on edge of periphery; peripheral projection fairly long.

Genus, *Sequenziceras*, Levi, 1896; family, Hildoceratidæ. Geological position, "Zone of *A. margaritatus*" (BLAKE, 1876, 303); M.L., *t*, Hawsker (SIMPSON, 1884, 125).

*Result*

SEQUENZICERAS NITESCENS, YOUNG & BIRD sp. 1828, Domerian, *algovianum* zone, [Hawsker], near Whitby.





AMMONITES NITESCENS, YOUNG & BIRD, 1828  
Whitby Museum, No. 256, Holotype  
Fig. 1, Side view; Fig. 2, Apertural view

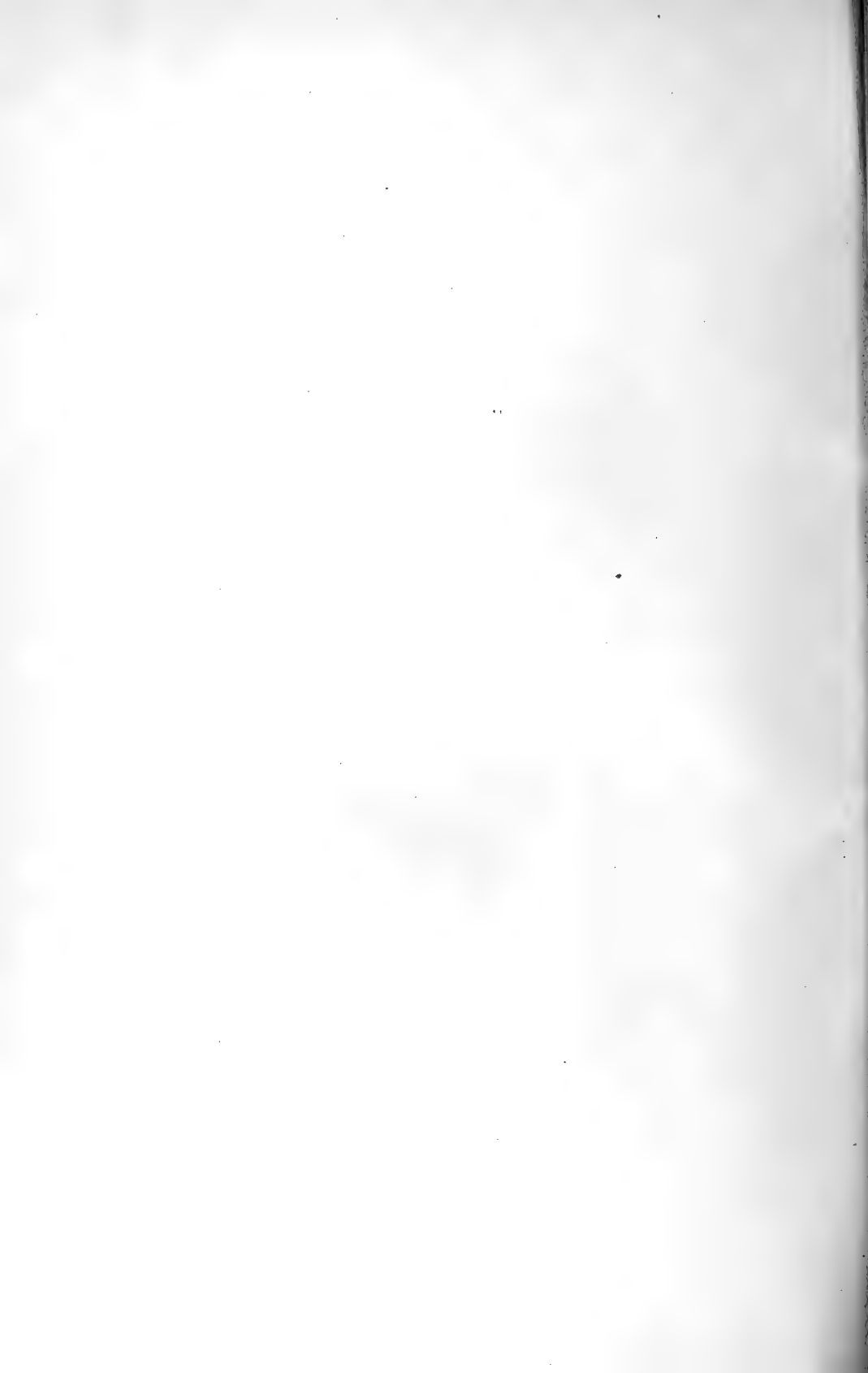


*Comparable Species*

93, 29, 21, 44

- Am. radians amalthei*, Oppel, 1853, III, 1—F. 47, 28, 17, 47.  
*Am. multicostratus*; Chapuis & Dewalque, 1855, VI, 2—F. 56, 26, 21, 52.  
 Falciferer Ammonit, Quenstedt, 1856, XXII, 28, type of  
*Am. algovianus*, Oppel, 1862, p. 137.  
*Am. obliquecostatus*; Quenstedt, 1856, XXII, 29, 30,—30, type of  
*Am. retrorsicosta*, Oppel, 1862, p. 138.  
*Am. algovianus*, Reynès, 1868, II, 1a, b—F. 56, 31, 20, 46; 1c—F. 20, 27, —, 50.  
*Am. ruthenensis*. Id. II, 4—F. 48, 29, 24, 47.  
*Harpoceras algovianum*; Blake, 1876, VIII, 1,—F. 84 (56), 30, —, 46.  
*H. algovianum*; Meneghini, 1881, App. II, 1,—F. 47, 27, 24, 43.  
*H. comense*; Id. II, 2—F. 25, 30, 29, 42.  
*H. retrorsicosta*; Id. II, 3—F. 17, 30, 30, 41.  
*H. ruthenense*; Id. II, 7—F. 26, 30, 20, 41.  
*H. ruthenense* var. *velox*, Id. II, 17—F. 17, 30, 30, 40.  
*H. nitescens*; Wright, 1882, XLIX, 4, 5—F. 40 (80), 34, 20, 40; 6, 7—F. 81, 29, 24, 50.  
*Am. radians* & *crassitesta*, Quenstedt, 1885, XLII, 43—F. 77, 30, 23, 49; 45—F. 88, 30, —, 48.  
*Am. cf. obliquecostatus*; Id. XLII, 44—F. 71, 27, 21, 52.

See also Bettoni, Foss. Dom. (Pal. Suisse) 1900, spp. under *Hildoceras* (*Arietoceras*).



# YORKSHIRE TYPE AMMONITES

EDITED BY

S. S. BUCKMAN, F.G.S.

The original descriptions reprinted, and illustrated by figures of the types  
reproduced from photographs mainly by

J. W. TUTCHER

## Part X

Pages v, vi; 9 Plates, and Descriptions Nos. 75—83

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75. TRANSFORMATUS,  
AMMONITES  
AGASSICERAS

75. AMMONITES TRANSFORMATUS, SIMPSON  
(Plate LXXV)

*Original Description*

"164. A[mmmonites] transformatus. [M. SIMPSON, 1855, p. 91.]

["III. Keel between two furrows.

"a. *Furrows slight.*" p. 90.]

"Volutions 5, exposed, outer whorl  $\frac{1}{2}$  the diameter; radii strong, prominent, sharp, separated by rather wide concave spaces, nearly obsolete on the back, straight until they reach the outer margin of the whorls, where, on the last whorl, they form a slight knob, and suddenly bend towards the aperture; keel much depressed, furrows on either side slight; aperture quadrate; diameter  $1\frac{1}{2}$  inch.

"The inner whorls of this species are destitute of any dorsal keel or furrow, and have a good deal the characters of *A. arcigerens*, though by no means so numerous and slender; but as they increase in size they have gradually formed upon the back a distinct elevated line, which ultimately becomes a depressed but distinct keel between two slight furrows; the radii towards the aperture become stronger, and form distinct knobs on the outer margin of the whorl, when they greatly resemble those of *A. Hawskerensis*. I have now seen a good number of specimens, which have been obtained from lias boulders in the alluvium on the Holderness coast, and some also from the lower lias at R.H. Bay."

SIMPSON, 1884, 130, 131, the same.

*Remarks*

Proportions: 40, 35, 36, 38: platy-, pachygyral, latumbilicate.

Stages, conch, serpenticone; periphery, 4; ornament, 1, 3, 4, 5.

About half a whorl of the type is body-chamber, without test.

Genus, *Agassiceras*, Hyatt (I, ii); family *Arietidae*. Geological position, according to Blake, (1876, 288, under *Ar. sauzeanus*), zone of *A. Bucklandi*.

The differences between *Am. transformatus* and *Am. halecis* (see p. 75c) are small. In the former the coiling is a little slower, the umbilicus slightly larger, the periphery rather more definitely squared, and the keel a little less prominent.

The holotype (Whitby Museum, No. 279) bears a faded label: "A transformatus, Lias boulder, Holderness Coast, Simpson."

*Result*

AGASSICERAS TRANSFORMATUM, SIMPSON SP. 1855, [Sinemurian, *gmuendense* zone], Alluvium, Holderness Coast.



Fig. 1

Fig. 2



AMMONITES TRANSFORMATUS, SIMPSON, 1855  
Whitby Museum, No. 279, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view

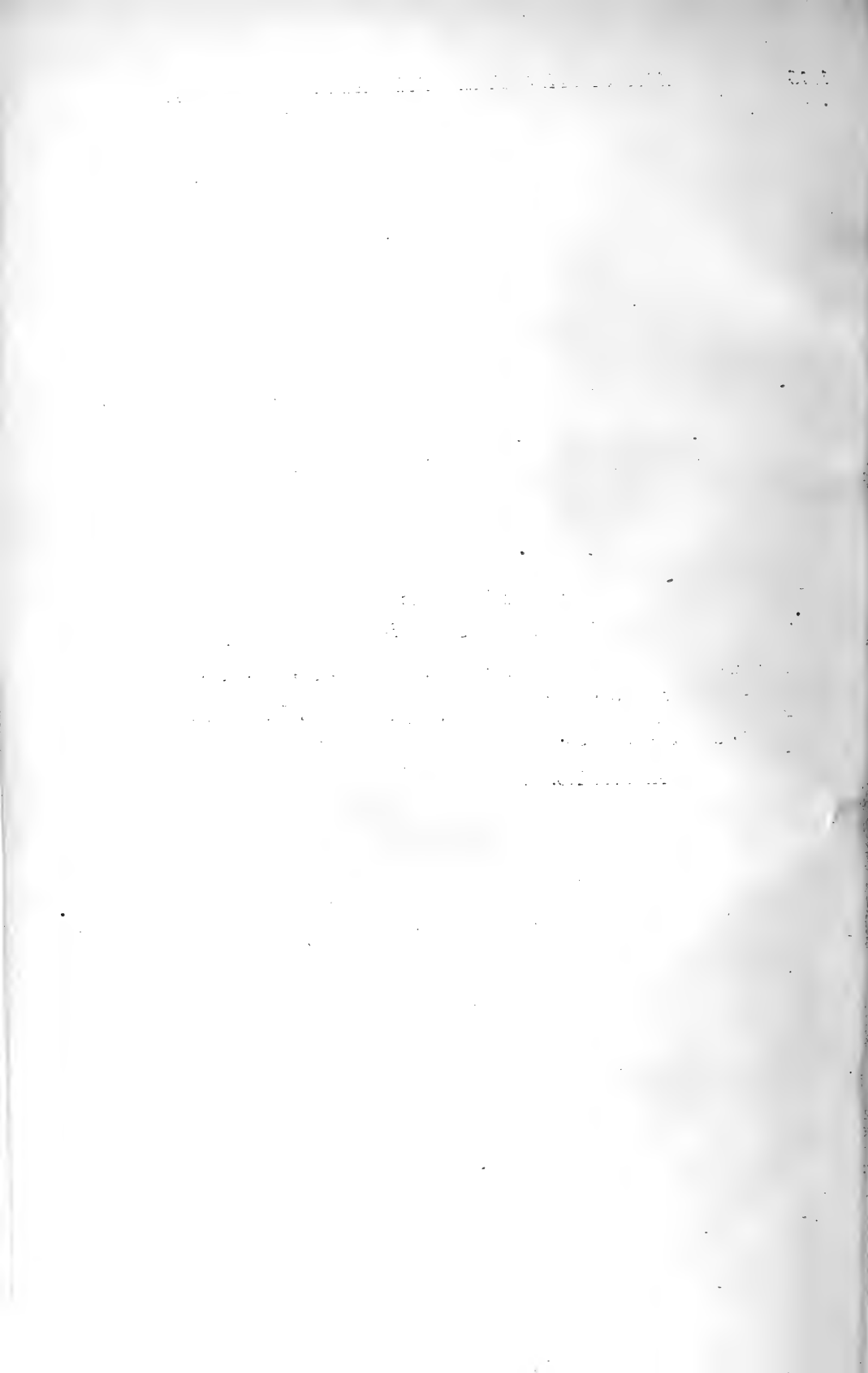


*Comparable Species*

40      35      36      38

- Am. sauzeanus*, d'Orbigny, 1844, xcv, 4, 5.—T. 30, 30, 35, 48,  
F. 30, 32, 36, 41.  
*Am. halecis*, J. Buckman, 1844, xi, 9; refig. Pal. U. 1904, 26—  
S. 32, 36, 39, 35.

And see No. 6.



76. DEFOSSUS,

AMMONITES

DEFOSSICERAS

76. AMMONITES DEFOSSUS, BEAN-SIMPSON  
(Plate LXXVI)

*Original Description*

"21. A[mmmonites] defossus, Bean's MSS. [M. SIMPSON, 1843, p. 15].

["I. Without a dorsal keel or furrow.

"a. No spines." p. 7.]

"Depressed; volutions 5 or 6, exposed; radii prominent, sharp, straight, suddenly bend towards the aperture in passing over the back, where they are much flattened; intervening spaces flattish; striated; aperture quadrate; diameter  $1\frac{3}{4}$  inch.

"This has long been confounded with the last [A. maculatus, Young & Bird], which it much resembles. As it occurs so frequently in this form, there can be little doubt that it is a distinct species. It may readily be distinguished from the last by the flattened back, which in some places is even concave. The whorls are less numerous than in A. arcigerens. It is from the Marlstone series."

*Additional Details*

SIMPSON, 1855, 48, "next" for "last" in first sentence, 2nd par. = A. maculatus; "last" in 3rd sentence = A. figulinus. Instead of last sentence, "M.L." SIMPSON, 1884, p. 78, "next" in first sentence, 2nd par. = A. capricornus; ends 2nd par. with "L.L., d, R.H. Bay," instead of "M.L."

*Remarks*

Proportions, 42, 29, 31, 47; subplaty-, subpachygyral, perlatum-bilicate.

Stages, conch, serpenticone; periphery, 3, incipient; ornament 5\*.

This is a comparatively oligogyral species. The first whorl is costate and stout, with a small umbilicus, almost a costate cadicone; later the whorl is rounded and the umbilicus enlarges, later the whorl becomes somewhat quadrate.

The ribs on the flattish sides have a slight curvature: they begin at whorl-edge versiradiate, then just beyond rounded umbilical edge have a slight rursiradiate direction; then, near the tuberculate geniculæ, gradually curve forward to sweep over the flattened squared periphery V-wise: the V looks as a ridge of clay would appear when pushed forwards by the finger; it is medianly flattened and broadened, while there are signs of a breaking up into subsidiary v ribs. A small carina, not of continuous strength, joins the apex of each V.

Genus *Defossiceras*, nov. (II, vi); family Amaltheidæ.

Geological position, Simpson's L.L. d is presumably intended for L.L. d, that is *striatum* zone. The specimen is of a brownish colour, however, not dark black nor maculate like some other species from that zone, so it may be somewhat later. *B. luridum* (No. 73) has a similar colour.

*Result*

DEFOSSICERAS DEFOSSUM, Bean-Simpson sp. Charmouthian [*capricornum* or] *striatum* zone, near Whitby.

Fig. 2



Fig. 1



Fig. 3



AMMONITES DEFOSSUS, BEAN-SIMPSON, 1843

Whitby Museum, No. 103, Holotype

Fig. 1, Side view ; Fig. 2, Peripheral view ; Fig. 3, Suture-line,  $\times 4$

DEFOSSICERAS DEFOSSUM, BEAN-SIMPSON SP.





*Comparable Species*

42	29	31	47
----	----	----	----

*Ægoceras althii*, Herbich, 1878, XX E, 1, (Vadasz).

*Æg. althii*; Vadasz, 1908, IX, 6, 7—"Original von Herbich"—  
T. 52, 35, 18, 46; F. 53, 33, 28, 46.



77. REGULARIS

AMMONITES

PALTOPLEUROCERAS

77. AMMONITES REGULARIS, SIMPSON  
(Plate LXXVII)

*Original Description*

"159. A[mmonites] regularis. [M. SIMPSON, 1855, p. 89.]

["II. With a keel on the back." p. 72.

"b. Outer whorl narrower." p. 87.]

"Volutions 4, inner ones  $\frac{1}{2}$  concealed, outer whorl more than  $\frac{1}{2}$  the diameter, with the sides rounded; radii numerous, regular, straight, bend towards the aperture near the keel; keel depressed; aperture acutely triangular, or ovate; diameter 1 inch and two-tenths.

"This ammonite is much more depressed than A. geometricus, the outer whorl is wider, and the radii are obtuse, and less numerous; the shell is roughish, and without striæ. I believe it is from the lower lias at R.H. Bay.—Mr. Clarkson's Col."

SIMPSON, 1884, p. 127, the same.

*Remarks*

Proportions, 32, 40, 19, 29; platy-, subleptogyral, sublatumbilicate.

Stages, conch, platycone; periphery, 4c, carina crenulate; ornament, 4c.

About half a whorl is body-chamber. The crenulate low keel is bordered by a slight depression each side, presumably obsolescent furrows. The radii are straight on the lateral area, and have indications of swellings (perhaps obsolescent tubercles), where they turn forwards on the peripheral margin. Peripheral projection not very pronounced, but difficult to follow.

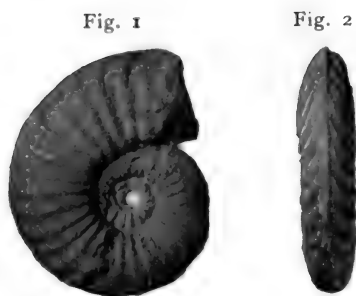
The specimen is not in good preservation, and the middle is damaged.

Genus, *Paltoleuroceras*, S. Buckman, presumably a dwarf, possibly a cripple, at any rate decrepit; family Amaltheidæ.

Geological position, matrix, marly oolitic, with a greenish tinge, the grains small, crowded and white: perhaps Simpson's "indurated grey band," Mid. Lias a (1884, xv).

*Result*

PALTOLEUROCERAS REGULARE, SIMPSON sp. 1855, Domerian, [*acutum* or *spinatum* zone?] Robin Hood's Bay, near Whitby.



AMMONITES REGULARIS, SIMPSON, 1855  
Clarkson Coll., Holotype  
Fig. 1, Side view,  $\times 1.1$  ; Fig. 2, Peripheral view



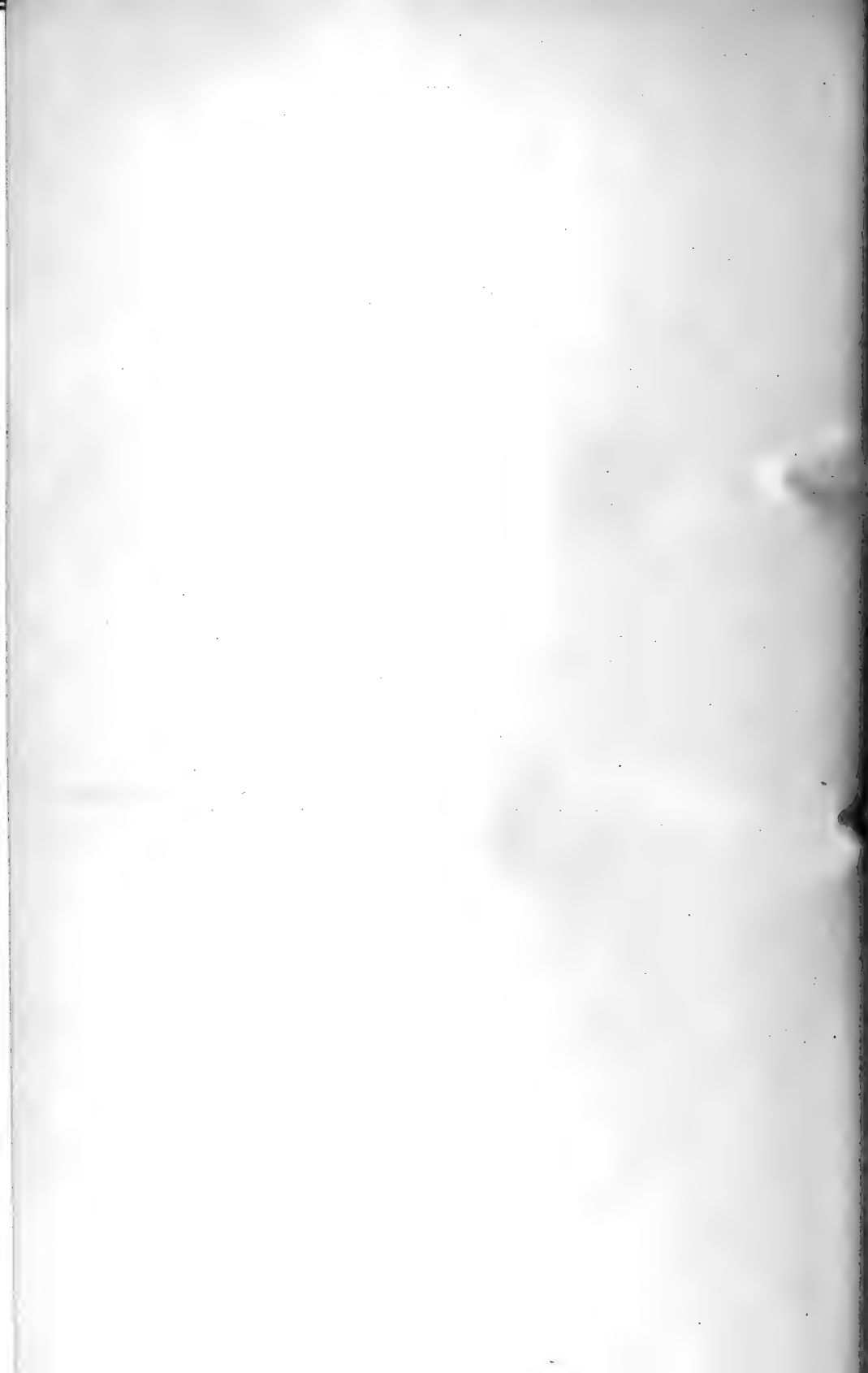
*Comparable Species*

32      40      19      29

*Pleuroceras pseudocostatum*, Hyatt, 1867, p. 90 =

*Am. costatus nudus*, Quenstedt, Jura, XXI, 3—F. 44, 34 [25 ?] 36.

See also Nos. **22**, **24**, **52**; and for spp. of genus, **24d**.





78. GAGATEUS,  
AMMONITES  
GAGATICERAS

78. AMMONITES GAGATEUS, YOUNG & BIRD  
(Plate LXXVIII)

*Original Description*

[Young & Bird, 1828, pp. 255, 359.]

"No. 7 [Plate XII] is a rare and beautiful little ammonite from the hard bands in the alum shale of the Hawsker shore. It is a smooth shining black shell, with very prominent ribs, each of which passes over the back undivided, and unaltered, or very slightly flattened. The aperture is round, or, rather, transversely oblong, the whirls being narrower on the sides than on the back; and they diminish very regularly, the smaller whirls showing their prominent ribs like rows of jet beads. We may name this shell *A. gagateus*.

"[P. 359] Plate XII. fig. 7. *A. gagateus*. Lias bands."

*Remarks*

Proportions, 47, 22, 30, 54; substeno-, subpachygyral, sub-extremilatumbilicate.

Stages, conch, serpenticone; periphery, 1; ornament, 4.

In a strong light, at a certain angle, may be seen a slight indication of a median keel on the periphery: the ribs cross it at right angles.

This is a polygyral species, with numerous inner whorls, whereon the ribs are prominent and distant—characters which they retain on later whorls.

The suture-line is simple, and feebly denticulate: the lobes are short and broad, the ES wide and shallow.

Genus, *Gagaticeras*, nov. (II, v); family Echioceratidæ, nov. (II, v), or Liparoceratidæ.

Geological position, BLAKE, 1876, 276, says "zone of *A. oxynotus*"; SIMPSON, 1884, 75, gives "L.L. 13, R.H. Bay"; p. xxi, places it in L.L. 2 and 13. Neither author mentions Hawsker, so that Young & Bird's locality and horizon may be deemed incorrect; so perhaps is L.L. 2, unless it be a case of derivation.

*Result*

GAGATICERAS GAGATEUM, YOUNG & BIRD sp. 1828, Sinemurian, *oxynotum* zone, near Whitby.

Fig. 1



Fig. 2

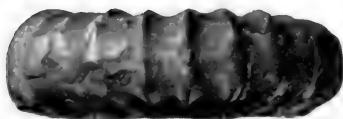


Fig. 3



AMMONITES GAGATEUS, YOUNG & BIRD, 1828

Whitby Museum, No. 104, Holotype

Fig. 1, Side view ; Fig. 2, Peripheral view ; Fig. 3, Suture-line,  $\times 4$



## Comparable Species

47	22	30	54
----	----	----	----

*Turrilites coynarti*, d'Orbigny, 1843, XLII, 47—F. 38, 23, 23, 55.

*Am. planicosta*; Dumortier, 1867, II, xxv, 1, 2, (3 ?)—F. 48, 23, 29, 55—see *Am. vesta*.

*Aegoceras gagateum*; Blake, 1876, vi, 8—F. 32, 29, —, 54.

*Am. vesta*, Reynès, 1879, XLV, 47-49—copy of *Am. planicosta*; Dumortier.

*Am. gagateus*; Id. 1, 23, 24—F. 34, 25, 30, 55.

*Aegoceras planicosta*; Geyer, 1886, III, 20—F. 25, 29, 31, 49.



79. LATESCENS,

AMMONITES

PSEUDOGRAMMOCERAS

79. AMMONITES LATESCENS, SIMPSON  
(Plate LXXIX)

*Original Description*

" 106. A[mmonites] latescens. [M. SIMPSON, 1843, pp. 54, 55.]

[" III. Keel between two furrows." p. 48.

" b. *Furrows distinct.*" p. 50.]

" Depressed; volutions 4 or 5, inner ones  $\frac{1}{2}$  concealed, outer whorl  $\frac{2}{3}$  the diameter, sides regularly rounded; radii waving, the last bend is towards the aperture, obtuse, distinct on the outer margin; keel sharpish, [p. 55] entire, furrows on either side distinct; aperture ovate; diameter  $1\frac{1}{4}$  inch.

" The breadth of the whorls, the regular convexity of their sides, and the form of the radii, give this ammonite a strong resemblance to *A. striatulus*, but it is destitute of striæ, and has a distinct furrow on either side of the keel."

*Additional Details*

SIMPSON, 1855, 100, adds after "outer margin," "on the inner whorls distant and nearly obsolete." Under *A. pinguis*, p. 100, he remarks "in *A. latescens* it [the keel] remains perfect where the shell has been removed" (See No. 80).

SIMPSON, 1884, 140, as in 1855.

*Remarks*

Proportions (without carina), 39, 28, 32, 42; subplaty-, subpachygyral, latumbilicate.

Stages, conch, serpenticone; periphery, 5; ornament, 4(c?).

There is a smooth stage till about 5 mm. diameter; then some obscure ribbing; later, strong regular costæ. The ribs of the early whorls begin at the whorl-junction, later they commence about on the edge, sometimes rather earlier, of a rounded umbilical margin. The whorls are convex.

What Simpson called the keel is only the impression of the partition-band: the true keel is lost, for the specimen is mostly a cast, though test remains between ribs. By 'keel sharpish' Simpson may have meant 'rather sharply defined,' which the flat impression of the partition-band is: this "remains perfect where the shell has been removed."

The specimen does not accord with Simpson's dimensions, being nearer  $1\frac{1}{2}$  than  $1\frac{1}{4}$  inch; the inner whorls are not  $\frac{1}{2}$  but only about  $\frac{1}{4}$  concealed; the outer whorl is much less than  $\frac{2}{3}$  the diameter. Otherwise the description fits well.

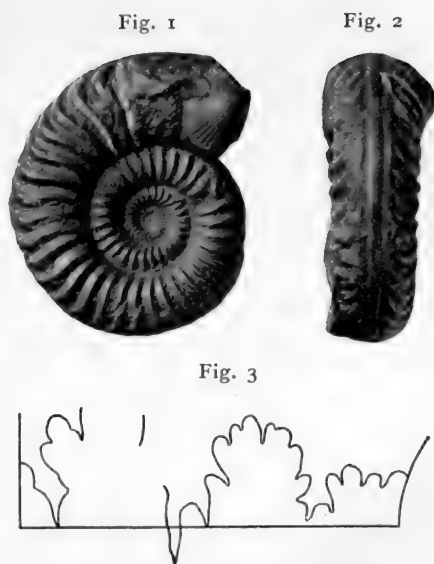
Genus, *Pseudogrammoceras*, S. Buckman, 1901, 266; Mon. 1904, cxliii; and it belongs to the subfalci-riate section of the genus (Mon. p. cxlix); family Hildoceratidæ. The suture-line (see fig. 3), imperfectly shown, is characteristic of the genus,  $L^2$  being unequalsided,  $S^2$  being shallow.

Geological position, the *striatulus* shales in a wide sense—the little lamellibranch, *Monotis substriata*, Zieten sp., is characteristic. The date may be somewhat later than *striatulus* hemera.

*Result*

PSEUDOGRAMMOCERAS LATESCENS, Simpson sp. 1843, Yeovilian, [struckmanni hemera, Peak, near Whitby.]





AMMONITES LATESCENS, SIMPSON, 1855

Whitby Museum, No. 311, Holotype

Fig. 1, Side view ; Fig. 2, Peripheral view ; Fig. 3, Suture-line,  $\times 3$ .

PSEUDOGRAMMOCERAS LATESCENS, SIMPSON SP.



*Comparable Species*

39,	28,	32,	42
-----	-----	-----	----

*Am. sæmanni*; Dumortier, 1874, IV, XIII, 4, 5—

F. }	?	69,	34,	26,	42
	?	112,	32,	24,	48.

*Pseudogrammoceras sæmanni*; S. Buckman, 1904, p. cl, fig. 142—

F. 80,	32,	24,	39.
--------	-----	-----	-----



80. PINGUIS,  
AMMONITES  
WHITBYICERAS

## 80. AMMONITES PINGUIS, SIMPSON

(Plate LXXX)

*Original Description*

" 186. A[mmonites] pinguis. [M. SIMPSON, 1855, p. 100.]

[" III. Keel between two furrows." p. 90.

" b. *Furrows distinct*." p. 93.]

Thickish; volutions 5 or 6, inner ones  $\frac{1}{2}$  concealed, outer whorl less than  $\frac{1}{2}$  the diameter, inner margin nearly perpendicular, sides regularly rounded; radii numerous, waving, strongest on the outer half of the whorl; keel plane, obtuse, between two distinct furrows; aperture ovate; diameter  $1\frac{3}{4}$  inch.

" This is much thicker than the last [*A. latescens*, *Simp.*]; and the radii more numerous; the keel also appears to be constructed in a different way, so as to be knocked off with the shell; whilst in *A. latescens*, it remains perfect where the shell has been removed. It is of a brown colour, and shining. It is from the jet-rock of the upper lias. —Mr. Clarkson's Col."

SIMPSON, 1884, p. 141, the same, except for trivial typographic details.

*Remarks*

Proportions	{ 42	43	36	31 }
	{ 22	39	47	27 }

Stages, conch, somewhat platycone; periphery, 5; ornament, 3c to 4c.

The whorls are only slightly gibbous, the ribs are small and numerous, unequal in size (irregular in strength), tending to be connate towards the steep, subconcave, plain umbilical margin, while some fail towards the inner area.

The keel which Simpson noted is really constructed on the same plan as that of *A. latescens* (No. 79), being a septicarina, but the test is on the periphery where the keel has been removed, and so the partition-band is flush, and does not show a false keel. In places the keel is partly preserved, and towards the end of whorl it is complete: it is then small, but well defined, and subacute.

Genus *Whitbyceras*, nov. (II, v); family Hildoceratidæ, subfamily Hauginæ.

Geological position, Simpson gives the Jet Rock, but this is doubtful if the species is correctly interpreted as an ally of *Brodiceras*: it would be expected in strata of similar geological age to its allies, namely *lilli* or *variabilis* zones.

*Result*

WHITBYCERAS PINGUE, SIMPSON sp. 1855, [Whitbian, *lilli-variabilis* zone? Peak, near Whitby.]

Fig. 1



Fig. 2.



AMMONITES PINGUIS, SIMPSON, 1855  
Clarkson Coll., Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view





*Comparable Species*

} 42	43	36	31 }
{ 22	39	47	27 }

*Am. comensis* ; Meneghini, 187-, VII, 1—F. 58, 38, 26, 30 ; 2—F. 64, 46, 34, 24.

*Am. bayani*, Dumortier, 1874, (IV) XVI, 7, 8—T. 45, 42, 37, 27 ; F. 45, 41, 32, 25.

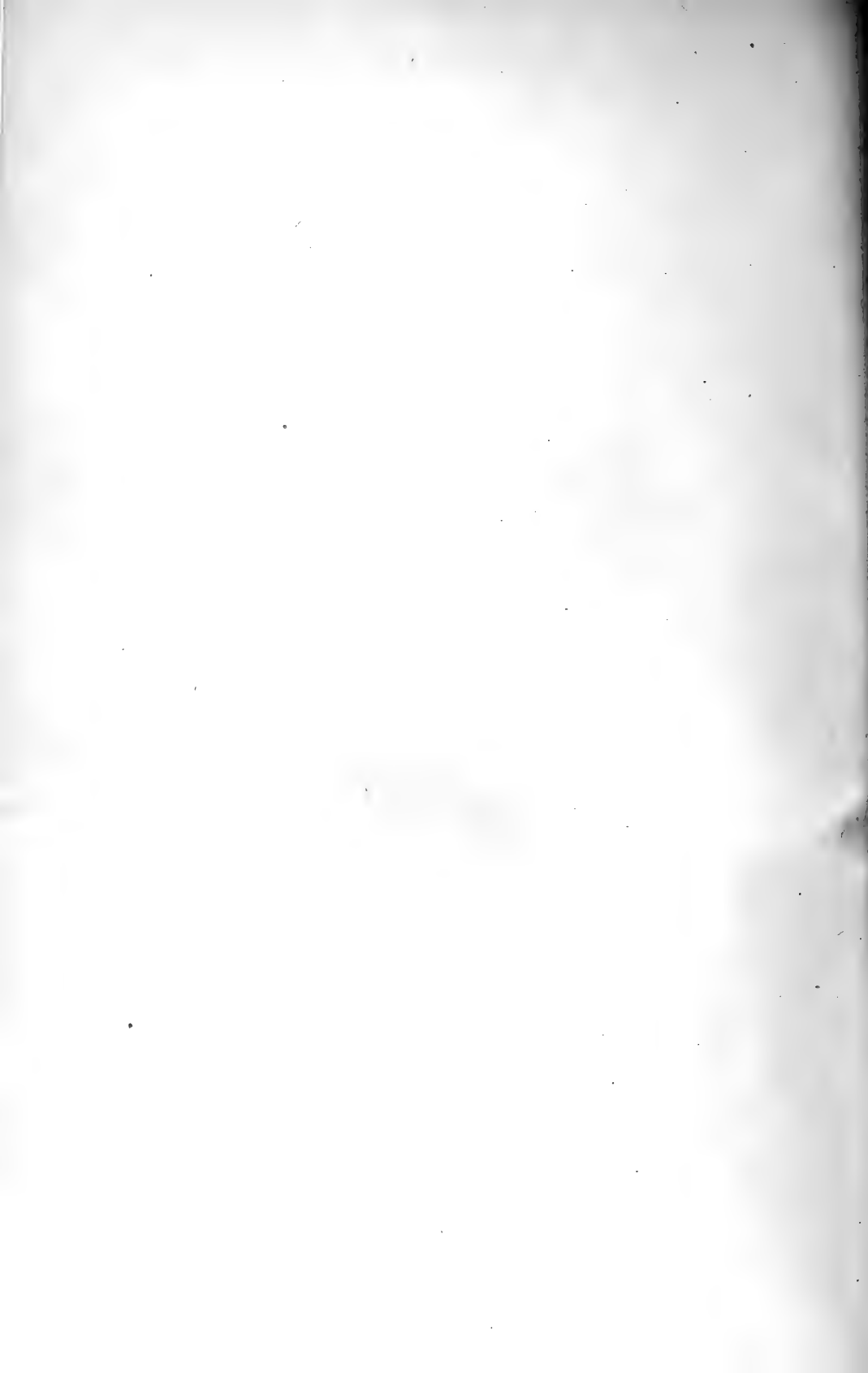
*Incertæ sedis*, S. Buckman, 1889, XXII, 35, 36 =

*Brodieia curva*, Id. 1898, Suppl. p. xxxii =

*Brodiceras curvum*, Id. 1899, p. xxxiii—F. 31, 42, 35, 27.

*Brodieia juncta*, S. Buckman, 1898, IV, 7-9 =

*Brodiceras junctum*, Id. 1899, Suppl. p. xxxiii—F. 28.5, 39, 37, 28.



81. BRAIKENRIDGII,

AMMONITES

OTOITES

81. AMMONITES BRAIKENRIDGII, J. SOWERBY  
(Plate LXXXI)

*Original Description*

[J. Sowerby. Min. Conch. Feb., 1818. II, p. 187.]

" AMMONITES Braikenridgii.

" TAB. CLXXXIV.

" SPEC. CHAR. Depressed; radiated; volutions exposed; front rounded; crossed by the radii; radii furcate; mouth round; lip expanded into two oblong lobes.

" Radii prominent, numerous, rather sharp, and equal to the spaces between them: there is a small tubercle upon each at the base of the branches; the thickness of the last whorl is rather less than one-third the diameter of the shell: there are about three or four volutions. The lip is very striking, it commences with a square base, and having been continued a little way from the last radius it suddenly expands on the sides into two oblong lobes, on which are distinctly marked the lines of growth: the edges are sharp, and gradually bent a little inwards.

" Perfect terminations of the Ammonites are rare; I have, however, met with several specimens indicating the form of the lip, but none of them exhibit anything much out of the usual way, excepting some French ones, and those now before us: in one of the French specimens the aperture is much contracted by the lip; in another, the lip forms a single arched lobe slightly bent inwards.\*

" These remarkable fossils are from Dundry near Bristol: they are composed of foliated carbonate of lime, and are embedded in a compact limestone, replete with rounded shining grains of yellowish brown oxide of iron, and the remains of various other shells. They enrich the collection of George Weare Braikenridge, Esq. of Bristol.

---

\* " Of these I have made an engraving for comparison [Plate A]; they are found in a similar stone with the British one, at Bayeux in Normandy, and were presented to me by Mons. de Gerville, to whom I am much indebted for the fossil produce of the Cotentin."

*Remarks*

Proportions: 44, 33, 37, 41; subplaty-, pachygyral, latumbilicate.

Stages, conch, serpenticone; periphery, 1; ornament 5.

Ribs slightly prorsiradiate, sharp on side up to small tubercle, where they bifurcate regularly, and are rounded: they pass straight over a somewhat medianly flattened periphery. The auricle rises sharply, is spatulate, has not a true lateral, but a somewhat latero-peripheral position. The inner edge of auricle is about in line with tubercles, and the auricle is thrown more peripherally by the rise from whorl being sharp in inner part, but flush as it merges into periphery.

Genus, *Otoites*, Mascke, 1907, 25; family *Otoitidæ*, Mascke. The species belongs to the *Am. sauzei* group (*Otoites*), and not to the group of *Am. braikenridgii*; d'Orbigny, *Normannites* (see S. BUCKMAN, 1908, 146). Its ears are somewhat more peripherally situated than is the case in its allies, but they are not so peripheral as in *Normannites*. Further it is distinguished by the peripheral ribs being rounded instead of sharpened. It is, for an *Otoites*, a rather umbilicate species.

Fig. 1



Fig. 2



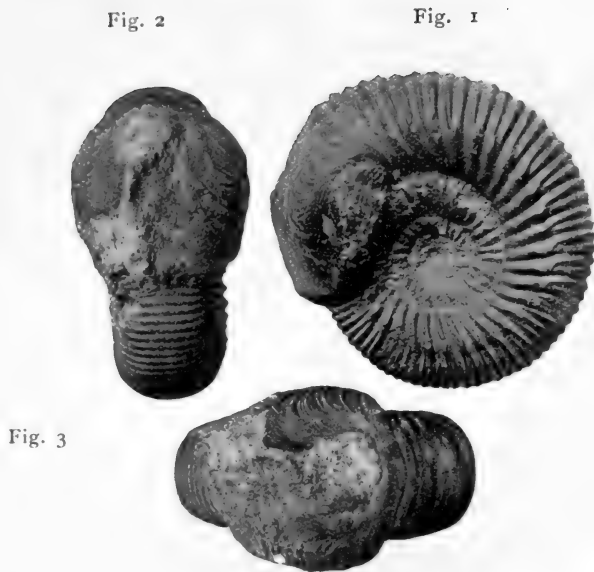
AMMONITES BRAIKENRIDGII, J. SOWERBY

Bristol Museum, Holotype

Fig. 1, Side view ; Fig. 2, Peripheral view

OTOITES BRAIKENRIDGII, J. SOWERBY SP.





AMMONITES BRAIKENRIDGII, J. SOWERBY, 1818  
Bristol Museum, Holotype, matrix removed  
Fig. 1, Side view ; Figs. 2, 3, Apertural views





Geological position : The Ironshot Oolite of Dundry is the highest bed of Bajocian preserved in the hill : the matrix is most distinctive.

Although this species is not a Yorkshire type, yet as *Am. braikenridgii* has been claimed as a Yorkshire species (Morris & Lycett, 1850, XIV, 1, p. 111) it is important to prove that the claim was not justified (See S. Buckman in Richardson, 1911, 205).

### Result

OTOITES BRAIKENRIDGII, J. SOWERBY sp. 1818, Bajocian, *sauzei* zone, Dundry, Somerset.

### Comparable Species

44      33      37      41

*Am. contractus*, J. de C. Sowerby, 1825, D, 2—F. 38, 41, 61, 23.

*Sphæroceras contractum*; Bayle, LIII, 1—F. 74, 39, —, 29;  
2—F. 58, 36, —, 26.

*S. sauzei*; Douvillé, 1885, III, 9—F. 23, 41, 50, 27.



82. RETUSUS,  
AMMONITES  
DEROCERAS

## 82. AMMONITES RETUSUS, SIMPSON

(Plate LXXXII)

*Original Description*

"85. A[mmonites] retusus. [M. SIMPSON, 1855, p. 62.]

["I. Without a dorsal keel or furrow." p. 35.

"b. Armed with spines or distinct tubercles." p. 58.]

"Rather depressed; volutions 6, exposed; radii obtuse, annular, split in two in passing over the rounded back, in the middle of which they have a slight bend towards the aperture, sometimes obsolete on the inner whorls; on the outer whorls, towards the outer margin, an irregular row of tubercles; aperture nearly round, rather transverse; diameter 2 inches.

"The shell, which is seldom preserved, is thin, and without striæ; the tubercles are strong and pointed, and come off with the shell, leaving their flattened bases on the cast. The ramifications of the septa, with their fingered and bushy lobes, are more numerous than in the last [A. marshallani, *Simp.*].—L.L.; R.H. Bay."

*Additional Details*

SIMPSON, 1884, 94, 95.—p. 95 has at end of first instead of 2nd par. "L.L., y [y] R.H. Bay."

*Remarks*

Proportions, 54, 31, 37, 46; subplaty-, pachygyral, perlatumbilicate.

Stages, conch, serpenticonc; periphery, 1; ornament, 5\*.

The early whorls are slowly coiled, and are almost smooth up to about 15 mm. diameter. Then a rib-stage begins but is not pronounced; and the first sign of tubercles appears at about 18 mm. diameter; but it is difficult to say exactly, for there remain no more than indistinct scars of basal septæ. The tuberculate stage is intermittent, especially at first: there being smaller plain ribs between larger tuberculated ribs, but later these smaller ribs show small scars, as if they had carried septate spines. If so, the tuberculation must have been irregular in size, as well as irregular in occurrence (intermittent). The smaller ribs are mainly single, the larger tuberculate ribs bi- or trifurcate at the tubercle.

The periphery is somewhat flattened; the sides of the whorls are divergent, though convex.

Genus, *Deroceras*, Hyatt; family *Deroceratidæ*.

*Result*

DEROCERAS RETUSUM SIMPSON SP. 1855, Charmouthian, *armatum* zone, Robin Hood's Bay, near Whitby.

Fig. 1



Fig. 2



AMMONITES RETUSUS, SIMPSON, 1855  
Whitby Museum, No. 184, Holotype  
Fig. 1, Side view ; Fig. 2, Apertural view

DEROCERAS RETUSUM, SIMPSON SP.



*Comparable Species*

54      31      37      46

*Am. armatus ruga*, Quenstedt, 1884, xxv, 9—F. 87, 33, 28, 45 ;  
fig. 10 ; Pl. xxvi, 1—F. 45, 29, 35, 45.

See also Nos. **83, 84** ; and further, Nos. **44, 64, 65, 71, 72**.





83. VALIDUS,  
AMMONITES  
DEROCERAS

83. AMMONITES VALIDUS, SIMPSON  
(Plate LXXXIII)

*Original Description*

"86. A[mmonites] validus. [M. SIMPSON, 1855, pp. 62, 63.]

["I. Without a dorsal keel or furrow. p. 35.

"b. Armed with spines or distinct tubercles." p. 58.]

"Volutions 6, exposed, outer whorl [p. 63]  $\frac{1}{2}$  the diameter; radii strong, coarse, annular, wider than the intervening spaces, split in two or three on the back, armed with a row of broad tubercles on the outer margin of the whorls; aperture circular; diameter  $3\frac{1}{4}$  inches.

"This is a much coarser ammonite than the last [*A. retusus*], with fewer whorls, and stronger radii, which become almost obsolete towards the aperture; there are the same large flat scars of the tubercles, and the ramifications of the septa are the same. It appears to be from the same beds of lower lias.—Mr. Leckenby's Col."

*Additional Details*

SIMPSON, 1884, 95, adds to end of first par. "L.L., y [y], R.H. Bay"; omits "Mr. Leckenby's Col."

*Remarks*

Proportions, 83, 31, 32, 46; subplaty-, subpachygyral, perlatumbilicate.

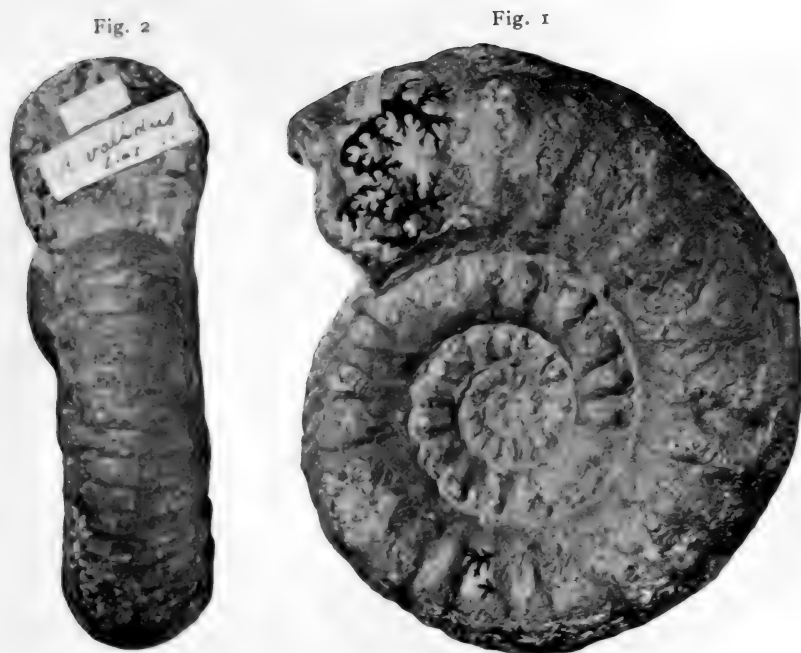
Stages, conch, serpenticone; periphery, 1; ornament, 5\*. There remain only the scars from where the septate spines have been removed. The tubercles begin at about 10 mm. diameter, being preceded by ribs, and, perhaps, a short smooth stage.

Genus, *Deroceras*, Hyatt; family Deroceratidæ.

Simpson noted correctly the differences between this species and his *A. retusus* (No. 82): there are more whorls to that species, the coiling being slower in the young stage, while the costæ develop slowly and feebly for a long time. It may be that *A. retusus* is an example of *A. validus* with cunctative palingenesis; but it has also a flatter venter, and the spinous stage, when attained, is not so strongly regular.

*Result*

DEROCERAS VALIDUM, SIMPSON SP. 1855, Charmouthian, *armatum* zone, Robin Hood's Bay, near Whitby:



AMMONITES VALIDUS, SIMPSON, 1855  
Sedgwick Museum, Cambridge (Leckenby Coll.), Holotype  
Fig. 1, Side view ; Fig. 2, Apertural view



*Comparable Species*

83      31      32      46

See Nos. **82, 84**; and also Nos. **44, 64, 65, 71, 72**.



# YORKSHIRE TYPE AMMONITES

EDITED BY

S. S. BUCKMAN, F.G.S.

The original descriptions reprinted, and illustrated by figures of the types  
reproduced from photographs mainly by

J. W. TUTCHER

## Part XI

Pages *vii, viii*; 7 Plates, and Descriptions Nos. 84—90

LONDON:  
WILLIAM WESLEY AND SON,  
28 ESSEX STREET, STRAND  
1913

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84. NATIVUS,  
AMMONITES  
DEROCERAS

84. AMMONITES NATIVUS, SIMPSON  
(Plate LXXXIV)

*Original Description*

"99. A[mm]onites] nativus. [M. SIMPSON, 1855, p. 68.]

["I. Without a dorsal keel or furrow." p. 35

"b. Armed with spines or distinct tubercles." p. 58.]

"Volutions 6, exposed; outer whorl more than  $\frac{1}{3}$  the diameter, inner margin rounded, prominent, slightly overhanging the succeeding one; radii obtuse, irregular, more numerous on the outer whorl, annular, a row of blunt tubercles on the outer half of the whorl, more distinct towards the aperture, the radii connected with the tubercles split in two on the back, between these are from one to three radii which pass over the back undivided; aperture circular; diameter 2 inches.

"As far as I can judge, the shell is smooth. The ramification[s] of the septa are very numerous, delicate, and angular, occupying nearly the whole whorl. This specimen, and a fragment of a larger one, are much cracked, and very fragile, arising apparently from the abundant pyrites they contain.—L.L.; R.H. Bay."

SIMPSON, 1884, p. 101, the same.

*Remarks*

Proportions:     { 28,   31,   34,   45 {  
                      { 55,   28,   35,   44 {

Subplaty-, pachygyral, perlatumbilicate.

Stages, conch, serpenticone; periphery, 1; ornament 5\*.

The whorl section is nearly circular.

The tubercles are intermittent: 2 or 3 plain ribs may occupy the spaces between the tuberculate ribs. On the last half-whorl shown there are 6 septate tubercles or signs of tubercles, of which the last 3 are separated by about half-inch spaces; while there are some 17 ribs. At the tubercle there may be bi- or trifurcation; there is also occasional bifurcation where the rib is plain.

The tuberculate stage seems to begin early, after a short smooth stage: there may be a short regular coronate (tuberculate) stage directly following the smooth stage; but the specimen is not in good condition. A part of the specimen—not photographed—is detached, and is nearly destroyed by decomposition of pyrites.

Genus, *Deroceras*, Hyatt; family, *Deroceratidæ*. Geological position, presumably L.L. y.

*Result*

DEROCERAS NATIVUM, SIMPSON SP. 1855, Charmouthian, [*armatum* zone], Robin Hood's Bay, near Whitby.

Fig. 2



Fig. 1



AMMONITES NATIVUS, SIMPSON, 1855  
Whitby Museum, No. 931, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view

DEROCERAS NATIVUM, SIMPSON SP.



*Comparable Species*

See Nos. **82, 83** ; and also Nos. **44, 64, 65, 71, 72**.



85. PHILLIPSI,  
AMMONITES  
PHYMATOCERAS

85. AMMONITES PHILLIPSI, SIMPSON,  
(Plate LXXXV)

*Original Description*

66.—A[immonites] Phillipsi. [M. SIMPSON, 1843, pp. 36, 37.]

[“ II. With a keel on the back. .

“ *a. Outer whorl broad.*” p. 31.]

“ Depressed, inner volutions much concealed, outer whorl  $\frac{2}{3}$  the diameter, thin near the back, thick at the inner margin, which is irregular with tubercles or swellings; radii unequal, nearly straight, then [p. 37] bend towards the aperture; keel sharp, prominent, entire; aperture triangular; diameter  $2\frac{1}{2}$  inches.

“ This is, at present, a rare species, and I am unacquainted with its locality, but I have no doubt of its being from the upper lias. In naming this species, I have much gratification in recording the name of Professor John Phillips, whose career as a geologist, I believe, commenced with an investigation of the fossils of the Yorkshire Coast, and to whose work I have the pleasure of making frequent reference.”

*Additional Details*

SIMPSON, 1855, 78, omits “depressed” and last sentence; 1884, 113, the same as 1855, but adds “U.L., 1, Peak.”

*Remarks*

Proportions: 64, 42, 24, 29 (without carina); platy-, subleptogyral; sublatumbilicate.

Stages, conch, platycone; periphery, 3c; ornament, 5\*.

The septicarina is thin, but moderately high. There is a slight flexure of the ribs, and some irregularity of ornament: these characters bring it near to the series I, B, *B* or *C* (S. BUCKMAN, Mon. p. xi) and so to genus *Phymatoceras*, Hyatt, 1867 (S. BUCKMAN, Mon. p. xxx).

Geological position, presumably just below the *striatulus* shales.

*Result*

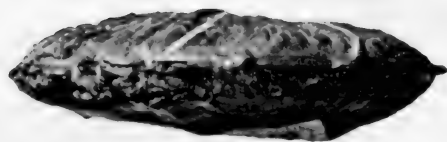
PHYMATOCERAS PHILLIPSI, SIMPSON SP. 1843, Whitbian, [*variabilis* zone], Peak, near Whitby.



Fig. 1



Fig. 2



AMMONITES PHILLIPSI, SIMPSON, 1843  
Whitby Museum, No. 1370, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view



*Comparable Species*

64      42      24      29

*Am. werthi*, Denckmann, 1887, II, 1,—F. 77, 45, [29] 27.

*Phymatoceras pauper*, S. Buckman, 1898, Suppl. III, 7;—F. 81,  
48, 21, 20.



86. NITIDUS,

AMMONITES

TRACHYLTOCERAS

86. AMMONITES NITIDUS, YOUNG & BIRD  
(Plate LXXXVI)

*Original Description*

[YOUNG & BIRD, 1828, p. 256]

"In the same beds [as *A. cornucopia*], we find a small ammonite exactly shaped like No. 8, [*A. cornucopia*], but little more than an inch in breadth, and quite smooth, marked only with lines of growth, a few of which rise in sharp rings. This rare species may be named *A. nitidus*.—It is evidently not the young of *A. cornucopia*; for the latter is found marked as the larger shells, but of a remarkably globose shape; a peculiarity observed also in the young of several other ammonites."

*Remarks*

Proportions, 27, 35, 40, 38; subplaty-, pachygyral, latumbilicate. Stages, conch, serpenticone; periphery, 1; ornament, 4.

The rings are irregular in size and distance; they have a distinct backward trend after they leave the rounded undefined inner margin.

What is seen undamaged is all body-chamber; part of L<sup>1</sup> is visible and appears to be somewhat simple. Earlier whorls are possibly striate or smooth.

Genus, *Trachyltoceras*, nov. II, vii; family *Lytoceratidæ*.

Geological position according to SIMPSON, 1884, 70, Jet Rock, Hawsker shore.

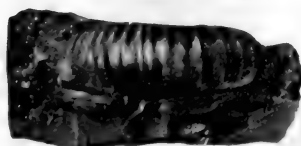
*Result*

TRACHYLTOCERAS NITIDUM, YOUNG & BIRD sp. 1828, Whitbian, [*exaratum* zone, Hawsker, near Whitby]

Fig. 1



Fig. 2



AMMONITES NITIDUS, YOUNG & BIRD, 1828  
Whitby Museum, No. 2547, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view





*Comparable Species*

27      35      40      38

*Am. funiculus*, Dumortier, 1874, IV, xxxi, 4, 5,—F. 32, 37, 37, 35; 6, 7,—F. 32, 36, 52, 34.

*Lyloceras* sp. ind. Meneghini, 187-, xxi, 5,—F. 43, 37, 32, 36, type of

*L. polidorii*, Bonarelli, 1899, p. 217.

*L. cornucopiæ* var.; Meneghini, 187-, xxi, 6,—F. 33, 38, 41, 40, type of

*L. corrugatum*, Bonarelli, 1893, p. 210.

And see No. 87.



87. FASCIATUS,

AMMONITES

TRACHYLTYOCERAS

87. AMMONITES FASCIATUS, SIMPSON  
(Plate LXXXVII)

*Original Description*

" 22. A[mmonites] fasciatus. [M. SIMPSON, 1855, p. 41.]

[" I. Without a dorsal keel or furrow.

" a. No spines." p. 35.]

" Depressed; volutions exposed; outer whorl more than  $\frac{1}{3}$  the diameter; radii annular, nearly obsolete; striæ annular, separated by flat or slightly concave spaces; aperture ovate; diameter  $1\frac{1}{4}$  inch.

" The cast of the inside is smooth, with very obsolete radii, or annular swellings, towards the aperture; the striæ resemble narrow thin strips of paper, laid on so as to show one edge; the aperture is nearly a very regular ellipse of but little eccentricity. The inner whorls of the only specimen I have seen are defective. I found it in the Jet Rock at Hawsker Bottoms. U.L."

*Additional Details*

SIMPSON, 1884, 70, adds to end of 1st par. U.L., v, 7 [U.L. Div. 7].

*Remarks*

Proportions: 29, 36, 38, 33; platy-, pachygyral, latumbilicate. Stages, conch, serpenticone; periphery, 1; ornament, 2.

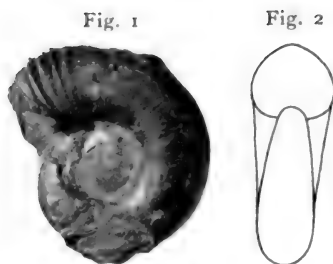
A damaged outer whorl, most of which is body-chamber, with no suture lines visible.

Ornament, rather broad depressed striæ, which trend somewhat backward after leaving the rounded, rather steep inner margin. Later, towards end of whorl, are signs of rings like those of *Am. nitidus*, No. 86.

Genus, *Trachylytoceras*, nov. (II, vii), on the supposition that it is the striate or prior stage corresponding to the inner whorls of *Am. nitidus*, the ringed stage coming on later in this species. Family Lytoceratidæ.

*Result*

TRACHYLYTOCERAS FASCIATUM, SIMPSON sp. 1855, Whitbian, *exaratum* zone, Hawsker, near Whitby.



AMMONITES FASCIATUS, SIMPSON, 1855  
Whitby Museum, No. 91, Holotype  
Fig. 1, Side view ; Fig. 2, Outline of front view, restored



*Comparable Species*

29	36	38	33
----	----	----	----

*Lytoceras sepositum*, Meneghini 187-, xxii, 3—F. 40, 33, 38, 40 ;  
4—F. 51, 34, 40, 39.

*L. sepositum* ; Bellini, 1900, p. 131, fig. 4.

And see No. 86.





88. PEREGRINUS,  
AMMONITES  
ALOCOLYTOCERAS

## 88. AMMONITES PEREGRINUS, SIMPSON

(Plate LXXXVIII)

*Original Description*

4. A[mmmonites] perigrinus. [M. SIMPSON, 1855, p. 36.]

[" I. Without a dorsal keel or furrow.

" a. No spines." p. 35.]

" A fragment with a finely rounded back equal to a semicircle, then a sudden depression on the side, a flat space, and a shallow umbilicus; siphuncle well displayed where the shell is wanting; transverse striæ numerous, flat, in places nearly obsolete; diameter 3 inches. Mr. Ripley's collection."

SIMPSON, 1855, p. [iv] "Errata in some of the copies. Page 36, for *perigrinus* read *peregrinus*." P. 145, "Ammonites *peregrinus*."

*Additional Details*

SIMPSON, 1884, p. 64, omits " Mr. Ripley's collection."

*Remarks*

Proportions: ? 61, 33, 30, 45; subplaty-, subpachygyral, perlatumbilicate.

Stages, conch, serpenticonc; periphery, 1; ornament, 2 (2c?).

The "depression on the side" is due to removal of test, exposing cast whereon may be seen indistinctly lobes of the simple *Lytoceratid* pattern.

Involution must have been very little: there is only a small indentation. The whorl-section would be slightly obovate, but with a slight inner margin.

The genus is presumably *Alocolytoceras*, Hyatt, 1900 (Buckman, 1905, 142); family *Lytoceratidæ*.

Geological position, judging from little matrix adherent, Grey Sands. The specimen is waterworn: it is presumably a fragment from the interior of a larger example.

The specimen (Whitby Museum, No. 71) bears Simpson's label "A. *perigrinus*, Lias, Whitby Mr. R."

*Result*

ALOCOLYTOCERAS? PEREGRINUM, SIMPSON SP. 1855, Yeovilian [*dispansum* zone? Peak], near Whitby.

Fig. 1

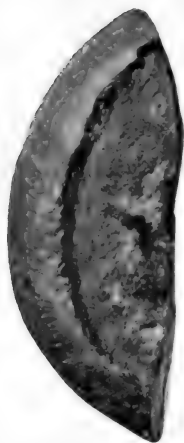


Fig. 2



AMMONITES PEREGRINUS, SIMPSON, 1855  
Whitby Museum, No. 71, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view

ALOCOLYTOCERAS PEREGRINUM, SIMPSON, 1855

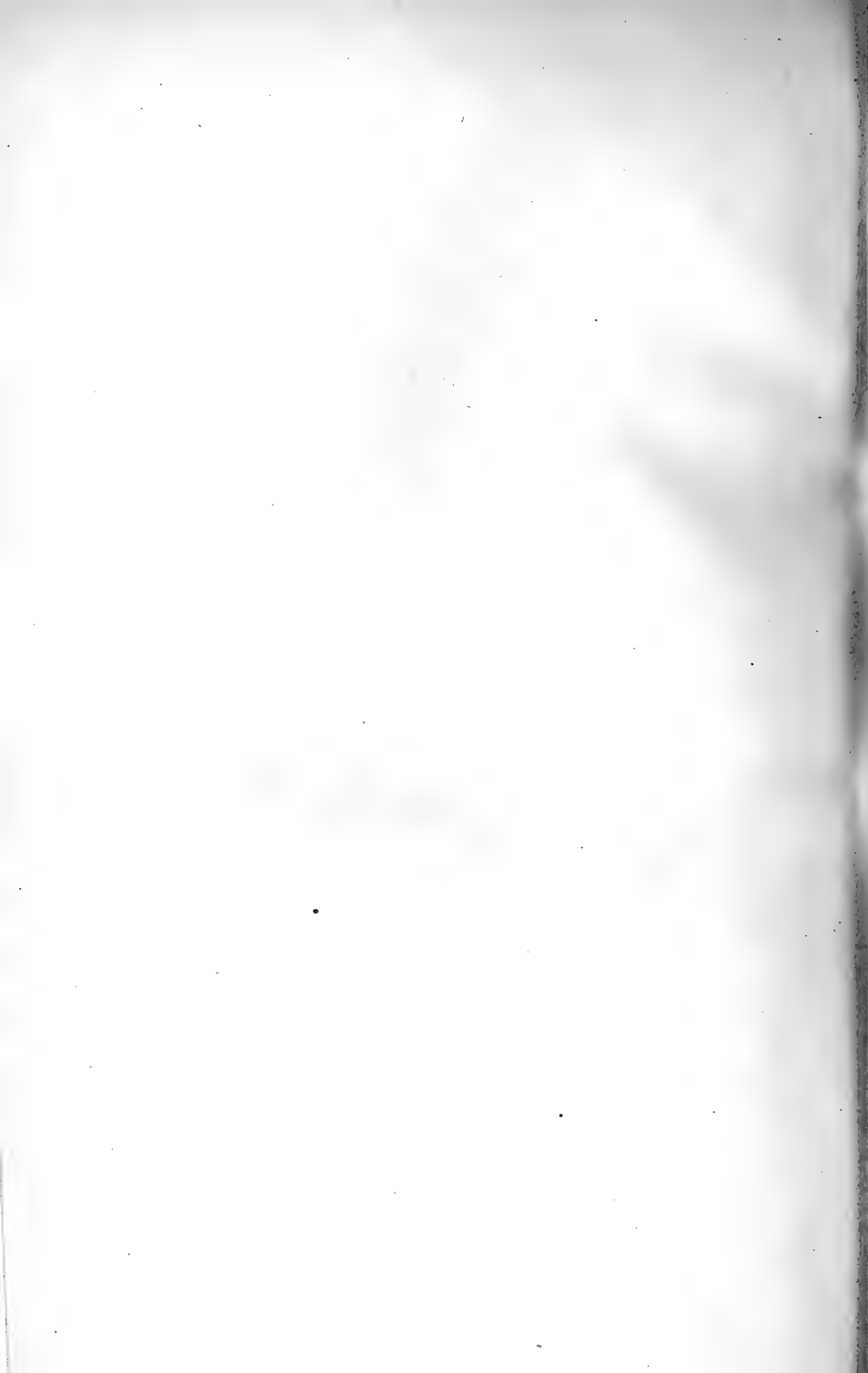


*Comparable Species*

(61       33       30       45) ?

*Am. jurensis*; d'Orbigny, 1845, Pl. c—T. 500, 43, 34, 30,—type of  
*Lytoceras sigalœn*, S. Buckman, 1892, p. 260.

*Am. phyllicinctus*, Quenstedt, 1885, XLVII, 7-9.



89. CRASSOIDES,  
AMMONITES  
CÆLOCERAS

89. AMMONITES CRASSOIDES, SIMPSON  
(Plate LXXXIX)

*Original Description*

" 62. A[mmmonites] crassoides. [M. SIMPSON, 1855, p. 55.]

[" The following species, to the end of the Section, have all a family resemblance to *A. communis* :—Whorls narrow, exposed, with numerous slender, annular ribs, which generally split in two on the back." p. 50.]

" This is still thicker in proportion [than *A. crassus*, *Y. and B.*], the inner whorls are rather concealed, and there is a row of tubercles in the middle of the whorls ; the aperture is transverse, and it is altogether a more elegant species than the last.—Jet-rock, U.L."

SIMPSON, 1884, 86, the same.

*Remarks*

Proportions, 76, 25, 36, 52 ; substeno-, pachygyral, subextremilatumbilicate.

Stages, conch, somewhat cadicone, passing to serpenticone ; periphery, 1 ; ornament, 5\*.

Ornament, tuberculate stage catagenetic, it appears to be regular in inner whorls, is intermittent and then failing on outer one. As inner whorls are damaged, it is uncertain if there be fibulation ; but comparison with Wright, 1884, LXXXV, 2, 3, suggests its presence. Ribs septate, bifurcate and entire ribs more or less alternating.

Genus, *Cæloceras*, Hyatt ; family Dactyloidae.

*Result*

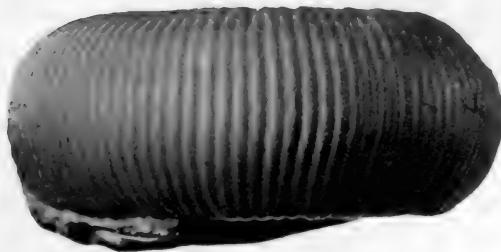
CÆLOCERAS CRASSOIDES, SIMPSON sp. 1855, Whitbian, *exaratum* zone, Whitby.



Fig. 1



Fig. 2



AMMONITES CRASSOIDES, SIMPSON, 1855  
Whitby Museum, No. 126, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view



*Comparable Species*

76	25	36	52
<i>Stephanoceras subarmatum</i> ; Wright, 1884, LXXXV, 2, 3—F. 66,			
28,	39,	48.	
<i>S. raquinianum</i> ; Id. LXXXVII, 4—F. 40, —, 78, —.			

And see Nos. **59, 60, 61, 69.**



90. VORTICELLUS,  
AMMONITES,  
PORPOCERAS

90. AMMONITES VORTICELLUS, SIMPSON  
(Plate XC)

*Original Description*

"81. A[mmonites] vorticellus. [M. SIMPSON, 1855, p. 61.]

["I. Without a dorsal keel or furrow." p. 35.

"b. Armed with spines or distinct tubercles." p. 58.]

"Volutions 6 or 7, exposed, outer whorl  $\frac{1}{4}$  the diameter; radii annular, obtuse, equal to the intervening concave spaces, alternate radii form a tubercle near the outer margin of the whorl, then split in two, and pass directly across the back; aperture subquadrate; diameter  $1\frac{1}{2}$  inch.

"This is a much more slender and depressed species than the last [A. vortex, Y.T.A. 29].

"Another, rather thicker, with the radii on the inner whorls more distant, each having a small tubercle on the outer margin of the whorls, may, for the present, be placed here as Var. a."

SIMPSON, 1884, 93, typographic variations only.

*Remarks*

Proportions, 40, 21, 27, 56; substenio-, subpachygyral; sub-extremilatumbilicate.

Stages, conch, serpenticone; periphery, 1; ornament, 5.

Whorls quadrate, sides flattened, periphery barely arched. Ribs somewhat distant, not strong. Ornament regular tuberculate in inner whorls, intermittent tuberculate later; fibulate pattern only feebly indicated. Primary rib when tubercled bifurcate over periphery; otherwise it is entire.

Genus, *Porpoceras* (I, v); family, Dactyloidæ.

Geological position, presumably Alum Shale and *fibulatum* zone.

The Var. *a* referred to above is a different species—see next article.

*Result*

PORPOCERAS VORTICELLUM, SIMPSON sp. 1855, Whitbian, [*fibulatum* zone, near Whitby].

Fig. 1



Fig. 2



AMMONITES VORTICELLUS, SIMPSON, 1855  
Whitby Museum, No. 154, Holotype  
Fig. 1, Side view ; Fig. 2, Apertural view

PORPOCERAS VORTICELLUM, SIMPSON SP.



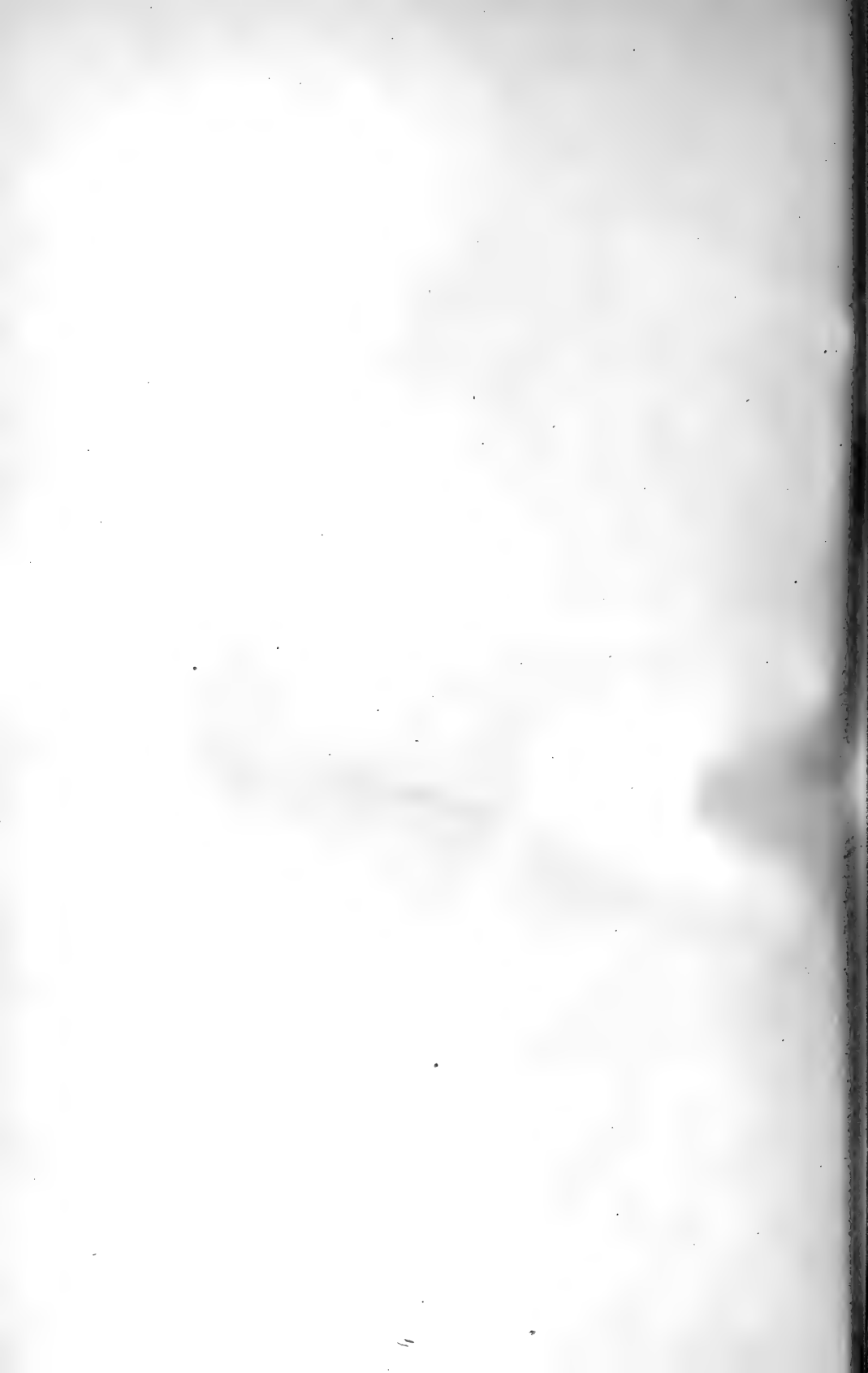


*Comparable Species*

40            21            27            56

*Am. subarmatus* ; Dumortier, 1874, xxviii, 8, 9,—F. 46, 22, 26, 55.  
*Caloceras subfibulatum*, Yokoyama, 1904, iii, 3—6 ; fig. 6—F. 43,  
24, —, 50.

And see Nos. 29, 50, 57, 91.



# YORKSHIRE TYPE AMMONITES

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## Part XII

Pages *ix, x*

8 Plates, and Descriptions Nos. 91—97

LONDON :  
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28 ESSEX STREET, STRAND  
1914

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And Plate LXXXI\*

91. VERTICOSUM,  
PORPOCERAS

## 91. PORPOCERAS VERTICOSUM, nov.

(Plate XCI)

*Original Description**Ammonites vorticellus*, Var. a, Simpson, 1855, p. 61 (Y.T.A. 90).Proportions,  $\left\{ \begin{array}{cccc} 46, & 24, & 33, & 52 \\ 71, & 21, & 26, & 61 \end{array} \right\}$ 

Substeno-, subpachy-gyral, subextremilatumbilicate.

Conch, serpenticonic; periphery, 1; ornament, 5.

Whorls subrotund, with inflated sides; periphery just arched; umbilicus very open, undulate. Ribs somewhat distant, somewhat coarse, showing intermittent tuberculation—on last whorl, closer, smaller, sharper; fibulate pattern occasional. Tubercles when present often give rise to 3 ribs on periphery, where there is somewhat of a zigzag pattern, the tubercles being more or less alternate, not truly opposite.

*Distinction*

From *A. vorticellus* (No. 90), stouter at the same diameter, with stronger and coarser ornament; the same features distinguish *P. vortex* (No. 29) from this species.

*P. vortex*, *P. verticosum*, *P. vorticellum* form a catagenetic series, the strength of ornament, which is decreasing in the species, decreases in the series; so does the size of the species. The whorl decreases in breadth in each species, as well as in the series as a whole. The umbilicus, though it increases in size in each species, does not attain the same degree of size in the smaller species, though it begins its increase earlier. The following proportional figures show the changes in individuals and series.

<i>P. vorticellum</i>	$\left\{ \begin{array}{cccc} 24, & 25, & 37, & 48 \\ 40, & 21, & 27, & 56. \end{array} \right.$
Y.T.A. xc	
<i>P. verticosum</i>	$\left\{ \begin{array}{cccc} 46, & 24, & 33, & 52 \\ 71, & 21, & 26, & 61. \end{array} \right.$
Y.T.A. xci	
<i>P. vortex</i>	$\left\{ \begin{array}{cccc} 55, & 25, & 42, & 50 \\ 83, & 21, & 33, & 64. \end{array} \right.$
Y.T.A. xxix a.	
<i>P. vortex</i>	$\left\{ \begin{array}{cccc} 68, & 22, & 36, & 56 \\ 99, & 18, & 26, & 66. \end{array} \right.$
Y.T.A. xxix b.	

*Remarks*

The present species, which Simpson regarded as a variety of his *Am. vorticellus*, is the *Am. subarmatus* of d'Orbigny and Joly.

Genus, *Porpoceras* (I, v); family Dactyloidea.

Geological position, presumably Alum Shale.

*Result*

PORPOCERAS VERTICOSUM, nom. nov. Whitbyan, [fibulatum zone, near Whitby].

Fig. 1



Fig. 2



AMMONITES VORTICELLUS, SIMPSON, 1855  
Whitby Museum, No. 220, Var. *a*  
Fig. 1, Side view ; Fig. 2, Peripheral view

PORPOCERAS VERTICOSUM, nov.





*Comparable Species*

{ 46	24	33	52 {
{ 71	21	26	61 }

*Am. subarmatus* ; d'Orbigny, 1844, LXXVII—T. 80, 21, 28, 62.

*Am. subarmatus* ; Hauer, 1856, XV, 6-8—F. 67, 24, 30, 54.

*Am. subarmatus* ; Dumortier, 1874, XXVIII, 6, 7—F. 71, 23, 21, 58.

*Am. subarmatus* ; Quenstedt, 1885, XLVI, 16—F. 64, 24, —, 58 ;  
17—F. 74, 22, —, 59.

*Cæloceras* (*Peronoceras*) *subarmatum* ; Joly, 1905, I—F. 87, 22,  
26, 60.

See also p. 91b and Nos. 29, 50, 57, 90.



92. OBSOLETUS,

AMMONITES

UPTONIA

## 92. AMMONITES OBSOLETUS, SIMPSON

(Plate XCII)

*Original Description*

"37. A[mmonites] obsoletus. [M. SIMPSON, 1843, p. 23.]

["I. Without a keel or furrow." p. 7.

"b. Armed with spines or distinct tubercles." p. 22.]

"There is also in the Whitby Museum another [besides *A. andraei*] which has broader, flatter whorls; the radii are very regular, formed merely by a slight groove, each has a small knob near the outer margin of the whorls, and then becomes nearly obsolete on the back; diameter  $4\frac{1}{2}$  inches.

*Additional Details*

SIMPSON, 1855, pp. 59, 60—"77. *A. OBSOLETUS*, *Simp.*—Much depressed; volu-[p. 60]tions 5, exposed, outer whorl less than  $\frac{1}{3}$  the diameter, sides flattened, inner margin suddenly rounded; radii numerous, straight, nearly obsolete, terminate in a row of small tubercles on the outer margin; diameter  $4\frac{1}{2}$  inches.

"The radii are very regular, formed merely by a slight groove. I have seen several, probably of this species, quite flattened.—L.L.; R. H. Bay."

SIMPSON, 1884, pp. 91, 92—p. 92 adds to first par. "L.L. 14, R. H. Bay [Robin Hood's Bay]", and omits locality from 2nd; but adds after 'flatted'—"They are figured by T. & B. [Tate & Blake], pl. vii., f. 1."

*Remarks*

Proportions, 92, 26, 16, 48; subplaty-, lepto-gyral, perlatum-bilicate. There is nearly another half-whorl; but this cannot be satisfactorily measured, as it is displaced and damaged.

Stages, conch, serpenticone; periphery, 1; ornament, 5.

The whorls are thin, laterally flattened except for very slight arching; the greatest thickness about the middle. The inner margin, sharp, flattened.

Ribs are small, feebly elevated, rounded, with the slightest sign of lateral curvature; each ends in a small spine, which is just at edge of periphery and is not covered. Radii appear to continue over venter as fine lines with slight forward curve. Ventral view cannot be given because of hard matrix.

Genus, *Uptonia*, S. Buckman (I. viii); family, Polymorphidæ.

Geological position, presumably *jamesoni* zone, with other species of the genus.

Simpson was mistaken in citing Blake's figure; and Blake was wrong in his identification. His *Ægoceras obsoletum* is one of the *Am. densinodus* group, family Deroceratidæ, and is from a much lower horizon. The position given by Simpson is about correct for Blake's species; but is much too low for an *Uptonia*.



AMMONITES OBSOLETUS, SIMPSON, 1843  
Whitby Museum, No. 157, Holotype  
Side view,  $\times 0.9$

UPTONIA OBSOLETA, SIMPSON SP.



## SPECIES OF UPTONIA

F. 79,	34,	26,	46.	U. costosa, Quenstedt sp. 1884, xxxi, 11.
F. (158,	30,	23,	46) ?	U. lacunosa, Quenstedt sp. 1884, xxxi, 13.
F. 66,	33,	21,	47.	U. ignota, Simpson sp. 1855, p. 61. (Y.T.A. xxi).
F. 28,	31,	26,	47.	U. ripleyi, Simpson 1843, p. 11 (Y.T.A. 11).
F. (270,	32,	17,	52) ?	U. margata, Quenstedt sp. 1884, xxxii, 1.
F. (143,	30,	17,	46) ?	U. lata, Quenstedt sp.
				<i>Am. jamesoni latus</i> , Quen. 1846, iv, 1.
F. 100,	32,	17,	45,	Cf. <i>Am. jamesoni</i> ; Hauer, 1856, xix, 1-3.
F. (150,	28,	17,	44) ?	U. jamesoni, J. de C. Sowerby sp., March, 1827, DLV, 1.
F. 177,	30,	17,	44.	Cf. <i>Aegoceras jamesoni</i> ; Wright, 1882, 11, 1.
T. 95,	26,	13,	54.	U. venustula, Dumortier sp. 1869, III, xvii, 4-6.
F. (49,	33,	—,	46) ?	U. angusta, Quenstedt sp.
				<i>Am. jamesoni angustus</i> , Quenstedt, 1846, iv, 8.
F. 94,	30,	15,	47.	Cf. <i>Dumortieria jamesoni angusta</i> ; Haug, 1887, iv, 6.
S. 92,	26,	16,	48.	U. obsoleta, Simpson sp. 1843, p. 23 (Y.T.A. 92).
F. 27,	28,	25,	50.	U. bronni, Roemer sp., 1836, xii, 8.
F. 19,	28,	25,	50.	Cf. <i>Am. regnardi</i> , d'Orbigny, 1844, LXXII, 3, 4.
S. { 22,	29,	26,	50,	A specimen from Carsaig Bay, Mull,
{ 66,	32,	23,	49,	T. 320D, Geol. Survey Scotland.
T. 160,	32,	20,	45.	<i>Am. regnardi</i> , d'Orbigny, 1844, LXXII, 1, 2.

The above species may not be all valid: several have been named on fragments, others on immature specimens.

The species are arranged approximately in biological order of development from parvicostate below to more and more crassicostate above.





.93. ELEGANTULUS,  
AMMONITES  
ELEGANTULICERAS

93. AMMONITES ELEGANTULUS, YOUNG & BIRD  
(Plate XCIII)

*Original Description*

[Young & Bird, 1828, p. 267.]

No. 11, Pl. XIII, is another of this family, corresponding with Sowerby's *A. elegans*, Tab. 94. 1. It is thin, slender ribbed, and has the inner angle of the whirl truncated, the truncated part generally forming a concave surface, like the groove in *A. angulatus*.—We have a minute shell nearly corresponding with this, but having the inner angle less raised, and the interior whorls a little more displayed. This neat little species, which is not the young of *A. elegans*, the latter being found of the same size along with it, may be termed *A. elegantulus*.

All these sigmoidal Ammonites are keeled.

*Remarks*

Proportions, 37, 49, 28, 24; perplaty-, subpachy-gyral, subangustumbilicate.

Stages, conch, platycone; periphery, 3 (3c?); ornament 4, 3, 2.

From a rounded peripheral edge and from a low concave inner margin the whorl rises to an obscure median ridge; there is consequently a depressed or flattened area around the umbilicus on the inner half of the whorl. The ornament consists of small, rather clean-cut ribs of low relief, which diminish in size and in the end pass to a striate stage. The ribs in the inner whorls are somewhat distantly spaced, so that an earlier form with distant costæ may be expected.

The carina is distinct, not very prominent, rather thin. It is presumably septate. The specimen is nearly complete: there is about half a whorl body chamber, as shown by the broken part.

Genus, *Elegantuliceras*, nov. (II, viii); family Hildoceratidæ.

Geological position, "U.L. 7 [Jet Rock]," SIMPSON, 1884, 108.

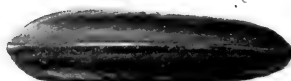
*Result*

ELEGANTULICERAS ELEGANTULUM, YOUNG & BIRD sp. 1828, Whitbian, *exaratum* zone, near Whitby.

Fig. 1



Fig. 2



AMMONITES ELEGANTULUS, YOUNG & BIRD, 1828  
Whitby Museum, No. 212, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view



*Comparable Species*

37	49	28	24	•
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*Am. ovatulus*, Simpson, 1855, p. 76,—S. 34, 46, 27, 24.



94. SINUATUS,

AMMONITES

DEROCERAS

94. AMMONITES SINUATUS, SIMPSON  
(Plate XCIV)

*Original Description*

83. A[mmonites] sinuatus. [M. SIMPSON, 1855, p. 62].

[" I. Without a dorsal keel or furrow." p. 35.

" b. Armed with spines or distinct tubercles." p. 58].

" Volutions exposed, outer whorl  $\frac{1}{3}$  the diameter, sides convex ; radii obtuse, separated by rather wide concave spaces, commence on the inner margin, slightly incline towards the aperture, and then in the opposite direction form a row of tubercles on the outer margin, nearly obsolete on the back ; aperture ovate or subquadrate ; diameter  $4\frac{1}{2}$  inches. —A Fragment, L.L."

*Additional Details*

SIMPSON, 1884, p. 94, places " , " after " opposite direction " ; adds at end " R. H. Bay."

*Remarks*

Proportions, 114, 27, 26, 52 ; subplaty-, subpachy-gyral, sub-extremilatumbilicate.

Stages, conch, serpenticone ; periphery, 1 ; ornament, 5\*.

This is a fragment of a body-chamber, but it is fairly well characterized. The sides of the whorls divergent, venter flattish, aperture obtrapeziform.

The tubercles are quite small ; the lateral costæ are small, sharp and slightly sinuous, with intermediate lineations ; on the venter the costæ are subobsolete.

Genus, *Deroceras*, Hyatt ; family Deroceratidæ. The geological position is not stated ; but the specimen is from an ironstone bed, presumably near the base of the Ironstone series.

*Result*

DEROCERAS SINUATUM, SIMPSON sp., 1855, Charmouthian, [*armatum* zone], Robin Hood's Bay, near Whitby.



Fig. 1

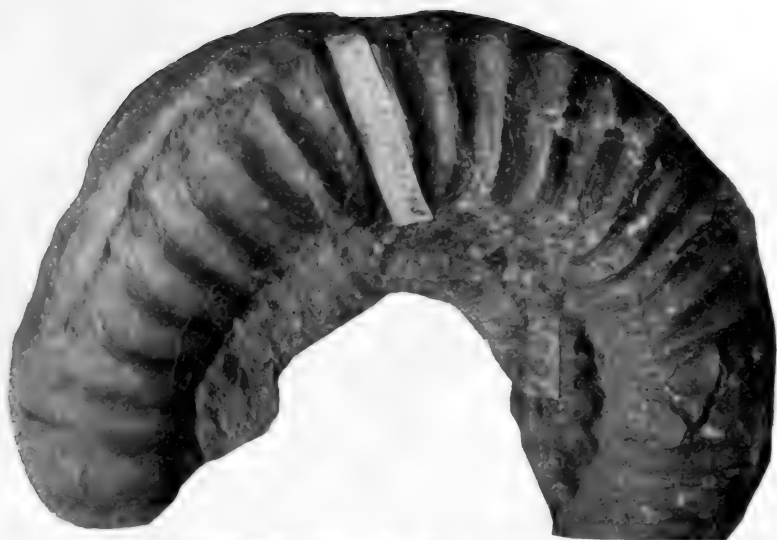
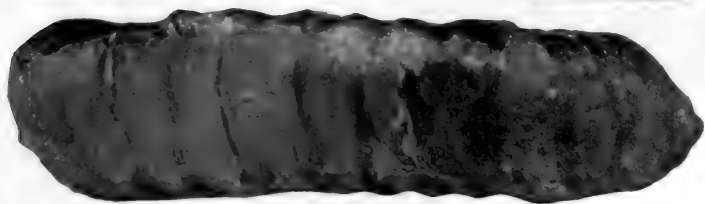


Fig. 2



AMMONITES SINUATUS, SIMPSON, 1855  
Whitby Museum, No. 160, Holotype  
Fig. 1, Side view (body chamber); Fig. 2, Peripheral view;  
both  $\times 0.93$



*Comparable Species*

114	27	26	52
-----	----	----	----

*Am. submuticus* ; Dumortier, 1869, III, XII,—F. 181, 27, 26, 49.  
*Aegoceras submuticum* ; Wright, 1880, XXVII—F. 147, 29, 34, 46.

And see Nos. **44, 64, 65, 71, 72, 82, 83, 84, 95**



95. SOCIALIS,  
AMMONITES  
DEROCERAS

95. AMMONITES SOCIALIS, SIMPSON  
(Plate XCV)

*Original Description*

" 16. A[mmonites] socialis. [M. SIMPSON, 1855, p. 39].

[" I. Without a dorsal keel or furrow.

" a. No spines." p. 35.]

" Volutions several, exposed, outer whorl two-fifths the diameter; radii irregular, diverging, pass unaltered over the back; striæ fine, longitudinal; aperture rather ovate; diameter 4 inches. L.L.—R.H. Bay. Syn. A. plicatilis, Simp."

*Additional Details*

SIMPSON, 1884, p. 67, adds after name " T. & B. [Tate & Blake], pl. vii., f. 6 "; has after " L.L." " t [t] "; omits last sentence.

*Remarks*

Proportions, 112, 33, 29, 40; subplaty-, subpachygyral, latumbilicate.

Stages, conch, serpticone; periphery, 1; ornament, 3c and 4c.

The specimen shows in side view only part of a whorl, which is somewhat obovate in section and carries obscure irregular sized and spaced costæ, with intermediate subcostæ. The specimen, in fact, shows the stage of costation which in this and like forms intervenes between two tuberculate stages. BLAKE (1876, VI, 6) depicts such a first tuberculate stage; Simpson's type shows the subsequent catagenesis—a costate stage; and there should follow renewed anagenesis—another tuberculate stage.

CANAVARI (1882, 156) suggested possible relationship with *Lytoceras biforme*, Sow.; but the highly complicated suture-line, though only exposed in places and difficult to follow negatives this: it is of the *Deroceras* pattern.

Genus, *Deroceras*, Hyatt; family Deroceratidæ.

Geological position as given by Simpson appears too high: BLAKE (1876, 276) says " subzone of *A. armatus*."

*Result*

DEROCERAS SOCIALE, SIMPSON sp. 1855, Charmouthian, [*armatum* zone], Robin Hood's Bay, near Whitby.

Fig. 1

Fig. 2



AMMONITES SOCIALIS, SIMPSON, 1855  
Whitby Museum, No. 68, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view ; both  $\times 0.95$





*Comparable Species*

112	33	29	40
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*Am. morogensis*, Dumortier, 1869, III, XIII,—F.

{ 156,	32,	22,	45 }
{ 277	27	19	51 }

*Ægoceras sociale*; Blake, 1876, VII, 6—F. 47, 35, —, 39

And see Nos. **44, 64, 65, 71, 72, 82, 83, 84, 94.**



96. AUREOLUS,  
AMMONITES  
ECHIOCERAS

96. AMMONITES AUREOLUS, SIMPSON  
(Plate XCVI)

172. A[mmonites] aureolus. [M. SIMPSON, 1855, p. 94.]

For *Original Description* and *Additional Details* see Vol. I, p. 28b.

*Remarks*

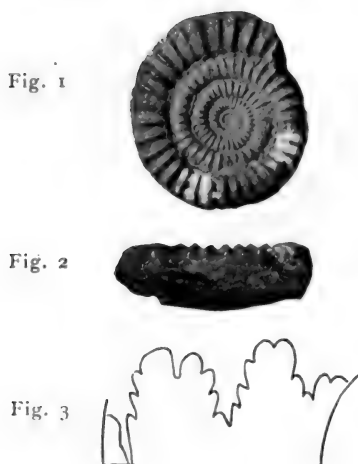
In the collection of the late Dr. Clarkson is a specimen with label *A. aureolus*, which agrees in diameter, colour and characters with Simpson's description. Therefore this specimen may reasonably be regarded as the holotype, and the Whitby Museum example (Pl. XXVIII) as a paratype. Hence an illustration of the Clarkson specimen and a revised notice is necessary.

The outer whorl of the Clarkson specimen is distinctly less than  $\frac{1}{4}$  the diameter, but that of the Whitby Museum example is barely so.

Proportions: Clarkson Coll.	24,	20,	21,	60.
Whitby Mus. Coll.	29,	24,	25?	58.

Narrow whorls, great regularity of ribbing and distinct peripheral sulci are the special features of the Clarkson specimen. The Whitby Museum example, besides differing in proportions, has not the same regularity of ribbing and is only just subsulcate. The Clarkson specimen would appear to be the young of the form figured by Blake as *Arietites tardecrescens*, especially if Blake's figure is somewhat reduced, as seems to be likely. The Whitby Museum example would fall into another category—the subsulcate series: it would come between *E. modestum* and *E. spiratissimum* in the annexed list (p. 96c). There is a larger example in the Clarkson collection which falls into the same position: it may be listed as the holotype of a new species with the Whitby Museum example as a paratype.

The Clarkson collection is now housed in the Jermyn Street Museum, having been acquired by the Geological Survey of England.



AMMONITES AUREOLUS, SIMPSON, 1855  
Jermyn St. Mus. No. 26402 (Clarkson Coll.), Holotype  
Fig. 1, Side view; Fig. 2, Peripheral view; both  $\times 1.1$ ;  
Fig. 3, Suture-line,  $\times 4$



## SPECIES OF ECHIOCERAS

(After all authors read "sp.")

*G. Carinate, periphery fastigate (degenerate from subsulcate ?)*

F. 118,	20,	11,	65.	<i>E. meigeni</i> , Hug, 1899, XI, 3.
F. 63,	26,	12,	58.	<i>E. macdonnellii</i> , Portl. 1843, XXIX A, 12.
T. 138,	21,	13,	62.	<i>E. nodotianum</i> , d'Orb. 1844, XLVII.
F. 56,	22,	15,	65.	<i>E. multicostatum</i> , Schaf. 1851, XVII, 25.
F. 69,	25,	15,	55.	<i>E. hugi</i> , n. Type, <i>Ar. meigeni</i> , Hug, 1899, XI, 2 ; subobsoleticostate ; obsoletisubsulcate ?
F. 42,	22,	18,	57.	<i>E. schlumbergeri</i> , Reynès, 1879, XLI, 20, 21.

*F. Carinate-sulcate (post- and pre-subsulcate ?)*

T. 117,	18,	15,	65.	<i>E. oosteri</i> , Dum. 1867, xxx, 3.
F. 61,	14,	15,	73.	<i>E. alpinum</i> , n. Type, <i>Am. spiratissimus</i> ; Hauer, 1856, III, 1-3 ; parent of <i>E. laeve</i> ?
F. 81,	15,	16,	73.	<i>E. aureolum</i> , Simp. (Y.T.A. 96)
F. 24,	20,	21,	60.	Cf. <i>Ar. tardecrescens</i> ; Blake, 1876, v, 5.
F. 54,	16,	15,	68.	<i>E. rothpletzi</i> , Böse, 1894, LVI, 5.
F. 86,	23,	16,	59.	Cf. <i>Am. nodoli</i> ; Reyn. 1879, L, 4, 5.
F. 153,	22,	16,	60.	<i>E. aplanatum</i> , Hyatt, 1889, 147, f. 23, 24.
F. 81,	21,	18,	61.	<i>E. studeri</i> , Hug, 1899, XII, 1.
F. 66,	21,	19,	62.	<i>E. ophioides</i> , d'Orb. 1844, LXIV, 3-5.
T. 29,	20,	20,	57.	Cf. T. 326E. Geol. Surv., Scotland, varic. z.
S. 38,	20,	21,	58.	Pabba Shales, Raasay.
S. 87,	22,	21,	61.	<i>E. laeve</i> , (Stur), Geyer, 1886, III, 10.
F. 43,	19,	22,	64.	

*E. Carinate-subsulcate (pre- and post-sulcate ?)*

S. 129,	19,	13,	65.	<i>E. subobsoletum</i> , n. Type, T.3662D. Like
F. 71,	24,	13,	59.	<i>Am. charpentieri</i> , Schaf. 1851, XVI, 2, 3, but with distinct subulci.
F. 52,	21,	14,	59.	<i>E. faivreii</i> , Hug, 1899, XII, 6.
S. 52,	20,	15,	65.	<i>E. polygyratum</i> , n. T.330E.
F. 69,	19,	—,	65.	Cf. <i>A. liasicus</i> ; Hug, 1899, XI, 1.
F. 109,	19,	15,	63.	<i>E. deciduum</i> , Hyatt, 1867, p. 76, on <i>Am. nodotianus</i> ; Hauer, 1856, VI, 1-3.
T. 58,	19,	15,	64.	<i>E. delicatum</i> , nov. Type, <i>Am. tardecrescens</i> ; Dum. 1867, xxxi, 3-5.
F. 89,	21,	15,	61.	<i>E. bavaricum</i> , Böse 1894, LVI, 1.
S. 86,	21,	16,	60.	<i>E. scoticum</i> , nov. Type, T.4491D. Like
S. 127,	19,	11 ?	65 ?	<i>macdonnellii</i> , but costæ stronger and con- tinued.
F. 130,	17,	15,	66.	<i>E. newberryi</i> , Hyatt, 1889, p. 152, f. 25, 26.
F. 43,	21,	17,	56.	<i>E. boehmi</i> , Hug, 1899, XII, 8.
F. 63,	24,	17,	56.	Cf. <i>Ar. bavaricus</i> , Böse, 1894, LVI, 2.
F. 73,	20,	17,	63.	<i>E. subquadratum</i> , n. Type, Hug, 1899, XII, 4.
F. 45,	24,	19,	60 ?	Cf. XII, 3. ( <i>Ar. cf. conybeari</i> )
F. 35,	20,	20,	61.	<i>E. modestum</i> , n. Type, <i>Ar. spiratissimus</i> ; Hug, 1899, x, 13 ; subdensiparvicostate.
S. 32,	23,	26,	58.	<i>E. regustatum</i> , n. Type, 26439, Geol. Surv. Eng.
S. 49,	23,	20,	58.	subparvi-subdistanti-costate.
F. 29,	24,	25 ?	58.	<i>Am. aureolus</i> , Simpson, Y.T.A. 28.
F. 47,	20,	21,	62.	<i>E. spiratissimus</i> , Quen. 1852, XXVII, 9.

*D. Carinate, periphery fastigate (degenerate from "arched" ?).*

F. 84,	21,	18,	61.	<i>E. laevidomus</i> , Quen. 1884, XXIII, 23.
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*C. Carinate, periphery arched (uncarinate in youth).*

F. 84,	18,	17,	66.	<i>E. prorsum</i> , n. Type, <i>Am. viticola</i> , Dum. 1867, xxxI, 9-11 ; prorsiradiate.
F. 50,	18,	18,	64.	<i>E. viticola</i> , Dum. 1867, xxxI, 12, 13.
F. 56,	20,	18,	63.	<i>E. edmundi</i> , Dum., 1867, xxxix, 3, 4.
F. 74,	21,	16 ?	60.	<i>E. quenstedti</i> , Schaf. 1847 (1851, XVII, 24).
F. 86,	23,	18,	58.	Cf. <i>Ar. quenstedti</i> , Böse, 1894, LV, 7.
T. 32,	22,	23,	56.	<i>E. vellicatum</i> , Dum. 1867, XL, 5, 6.
F. 51,	22,	24,	59.	<i>E. rhodanicum</i> , n. Type, Dum. 1867, xxv, 4, 5.

F. 90,	20,	24,	62.	E. raricostatoides, Vadasz, 1908, p. 373. Type, <i>E. rarecostatum</i> ; Bayle, 1878, LXXVII, 2, 3.
F. 37,	21,	41,	59.	Cf. <i>Am. varicostatus</i> ; Quen. 1884, XXIII, 26.
S. 29,	19,	25,	60.	E. boreale, nov. T.4435D. Like <i>Turr. boblayei</i> , d'Orb., but flattened periphery, small keel, and fine close ribs in centre.
F. 87,	20,	25,	62.	E. costidomus, Quen. 1884, XXIII, 21.
F. 42,	22,	26,	60.	Cf. <i>A. r. zietenii</i> , Quen. 1884, XXIII, 28.
F. 42,	19,	30,	65.	E. zietenii, Quen. 1884, XXIII, 27.
T. 93,	20,	22,	62.	Cf. <i>Am. varicostatus</i> ; d'Orb. 1844, LIV, I, 2.
T. 95,	22,	19,	60.	<i>Ar. varicostatus</i> ; Wright, 1878, VII, 2-4.
F. 20,	20,	30,	58 ?	E. gracile, Quen. 1856, XIII, 16.
F. 23,	20,	28,	59.	Cf. <i>A. r. microdiscus</i> , Quen. 1884, XXIV, 4.
F. 28,	20,	31,	59.	E. microdiscus, Quen. 1884, XXIV, 3.
F. 20,	20,	41,	58 ?	E. robustum, Quen. 1856, XIII, 17, p. 106.
(B. Uncarinate ( <i>carina later</i> ? Young stage of C ?))				
F. 30,	21,	[31]	60.	E. exortum, Simpson (Y.T.A. 19).
F. 25,	21,	41,	59.	E. cereum, Simpson (Y.T.A. 49).
F. 36,	21,	37,	59.	Cf. <i>Am. varic. zietenii</i> , Quen. 1884, XXIII, 29.
A. Uncarinate ( <i>cripple periphery</i> ).				
T. III,	19,	16,	64.	E. armentale, Dum. 1867, XXIX, I, 2.

The species are arranged in order of whorl-thickness under the respective headings. Owing to differences in diameters of types this does not give quite a true developmental sequence among the catagenetic species; it is, however, fairly approximate for them, though it may place some of the anagenetic species much out of order. In each species there is development in thickness up to a maximum, and then decline: the maxima fall at very different diameters in different species. Renewed thickening may be expected in smooth forms.

Information kindly permitted to be used for the above list was obtained from a large series of Scotch specimens from Raasay, Isle of Mull, submitted for identification by the Geol. Survey, Scotland: numbers like T.4491D. indicate these; also from specimens submitted or loaned by the Geol. Survey, England, Sedgwick Museum, Cambridge, etc., as well as Radstock examples from the collections of Mr. Tutchter and the Editor.

The Raasay beds are very important. The strata yielding *Echioceras* are about 200 ft. thick, and they give the following descending sequence:—

*Sequence of Echioceras in the Pabba Shales, Raasay.*

F.	Sulcates	E. cf. oosteri, E. cf. aplanatum
E.	and subsulcates	E. subquadratum
G.	Degenerates	E. macdonnellii
E.	and subsulcates	E. scoticum and other subsulcates
C.	Crassicostate	E. robustum, zietenii, varicostatoides
B.	non-sulcates	E. cereum
E.	Subsulcates	E. boehmi
D.C.	and non-sulcates	E. laevidomus, E. edmundi
C.	Parvicostate	E. boreale, prorsum, with Derocerates
	non-sulcates	of the densinodum type.

The above are some illustrative species. It will be seen that in a general way the geological and biological sequences are in accord.



97. COSTATUM,  
TILTONICERAS

97. *TILTONICERAS COSTATUM*, S. BUCKMAN  
(Plate XCVII)

*Original Description*

[1913, Y. T. A., II, viii]

"*T. costatum* differs from *T. acutum* in being more distinctly and strongly costate."

*Additional Details*

Proportions, 29, 46, 29, 29; perplaty-, subpachy-gyral, sublatumbilicate.

Stages, conch, platycone; periphery, 3; ornament, 4.

The whorls are broad, the ribs are distinct, slightly flexed on the side, continued as fine lines with a very long forward sweep on to the periphery, which carries a rather massive, fairly prominent carina.

The inner margin falls steeply, with only the least sign of concavity.

*Remarks*

The costæ are stronger and more persistent than in *H. acutum*, Tate, and the umbilicus is slightly larger, especially in the inner whorls. This species is in the costate stage; *T. acutum* is in the striate stage, with the costate stage in the inner whorls.

In the example of *T. costatum* depicted in Pl. XCV, fig. 1, the portions marked white to show the radial curves cover two costæ, so do the intermediate dark parts.

Genus, *Tiltoniceras*, nov., of which *T. costatum*, type, is the genotype; family Hildoceratidæ.

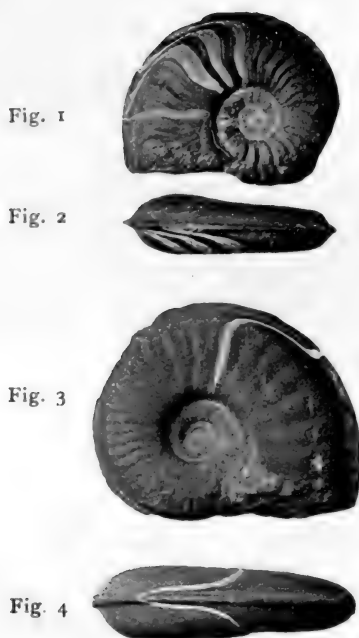
Geological position, in the Transition Bed, which is just above the zone of *Paltoleuroceras spinatum*.

*Result*

*TILTONICERAS COSTATUM*, S. BUCKMAN, 1913, Domerian, *acutum* zone, Tilton, Leicestershire.

*Note*

Figs. 3, 4, Plate XC, depict a paratype from the same place in the Collection of Mr. J. W. Tutchet, who has photographed it, and marked in the radial line. It is a larger specimen, showing the ribs becoming stronger and broader. Its proportions are 37, 44, 28, 26. Both types were originally collected by the late E. Wilson, F.G.S.



TILTONICERAS COSTATUM, S. BUCKMAN  
Fig. 1, Side view ; Fig. 2, Peripheral view of Holotype ;  
S. Buckman Coll.  
Figs. 3, 4, Same views of Paratype ; J. W. Tutcher Coll.



*Comparable Species*

29      46      29      29

*Harpoceras acutum* ; Wright, 1884, LXXXII, 7, 8—T. 31, 42, 25, 29.  
*Am. acutus* ; Denckmann, 1887, X, 2—F. 30, 49, 26, 19.



# YORKSHIRE TYPE AMMONITES

EDITED BY

S. S. BUCKMAN, F.G.S.

The original descriptions reprinted, and illustrated by figures of the types  
reproduced from photographs mainly by

J. W. TUTCHER

## Part XIII

9 Plates, and Descriptions Nos. 98—102

LONDON :  
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1914

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99.	A. subtensis	..	..	..	..	„	XCIX A, B
100.	Æg. finitimum	..	..	..	..	„	CA, B
101.	A. neglectus	..	..	..	..	„	CI
102.	A. hastatus	..	..	..	..	„	CII A, B

CHELTENHAM

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ST. GEORGE'S HALL



98. HYPERBOLICUS,

AMMONITES

PHLYCTICERAS

98. AMMONITES HYPERBOLICUS, SIMPSON-LECKENBY  
(Plates XCVIII A, B.)

*Original Description*

[Leckenby, 1859, pp. 7, 11, 12, 15.]

" [P. 7] Fossils of the Kelloway Rock of Yorkshire. . . .  
" *Am. hyperbolicus*, *Simpson, MS.*

" [P. 11.] 24. AMMONITES CHAMUSSETI, D'ORBIGNY

" *Ammonites lenticularis*, Phillips

" *Locality.* Red Cliff only.

" 25. AMMONITES FUNIFERUS, PHILLIPS.

" This is a much more depressed species than *Am. Chamusseti*, and the intricate character of the foliations of the septa also distinguish it.

" *Locality.* Red Cliff only.

" [P. 12.] 26. AMMONITES HYPERBOLICUS, LECKENBY (SIMPSON MS.).  
Pl. II, fig. 4a, 4b.

" This, on the contrary, is so much thicker than *Am. Chamusseti* as to be nearly globular. The outer whorl entirely envelops the umbilicus; and the keel, which is not crenulated, is nearly obsolete.

" [P. 15.] Plate II. Fig. 4a. *Am. hyperbolicus*, *Leckenby* (*Simpson, MS.*) side view; half nat. size. 4b. Front view, showing aperture.

" AMMONITES HYPERBOLICUS (p. 12). *Locality.* Red Cliff.

*Remarks*

Proportions, 78, 56, 109, 0; subextremiplatygyral, ultraper-extremipachygyral, clausumbilicate.

Stages, conch, sphaerocone; periphery, 2c; ornament 1c, though with traces of obsolete subcostæ.

The specimen is without test. Nearly all the outer whorl is body-chamber, and there are no suture-lines traceable. There appears to be no umbilicus, and with test present there would presumably be a columella.

The keel is represented by a median ridge. There are signs of ribs running at right angles to, and passing over the stout but little elevated keel. Each side of the keel there is a narrow depression. Beyond this is a slight longitudinal ridge. There is a faint sign of another ridge nearer the centre.

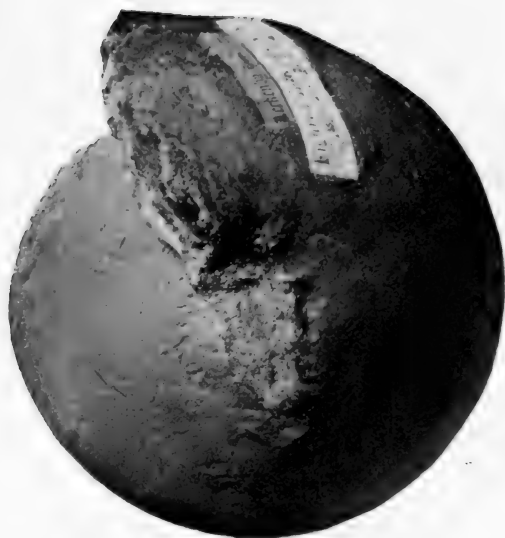
The characters in the above paragraph indicate the generic position—that the species is a catagenetic, sphaeroconic, occlusal development of the series of *Am. pustulatus* (see S. BUCKMAN, *Q.J.G.S.* 1913, 164); the ridges are the remains of, and occupy the positions of the lines of tubercles seen in those species; and so the keel may be regarded as the degenerate relic of the crested carina.

Genus, *Phlycticeras*, Hyatt, 1900, 569; family, Oppelidæ.

Geological position: from a brown very oolitic matrix with small grains, being one of the beds of Leckenby's Kelloway Rock. (See S. BUCKMAN, 1913, 154).

*Result*

PHLYCTICERAS HYPERBOLICUM, SIMPSON - LECKENBY sp. 1859, Callovian, *koenigi* zone, Red Cliff, Scarborough.



AMMONITES HYPERBOLICUS, SIMPSON-LECKENBY, 1859  
Sedgwick Museum, Cambridge (Leckenby Coll.), Holotype  
Side view  $\times 0.94$

PHLYCTICERAS HYPERBOLICUM, SIMPSON-LECKENBY SP.



Fig. 1

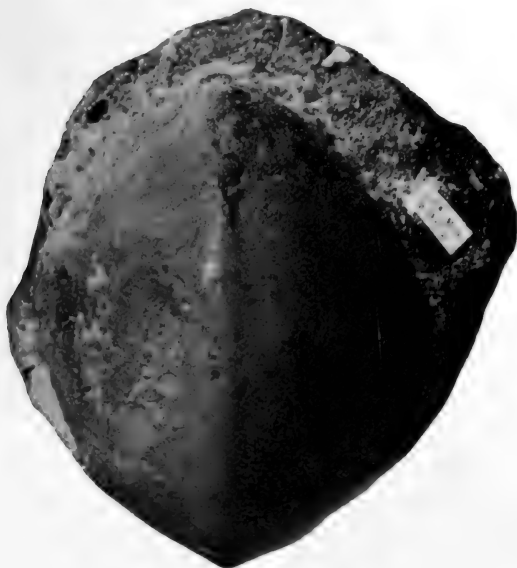
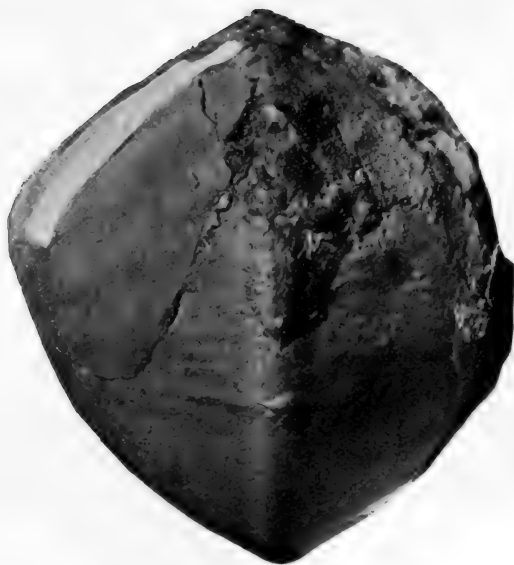


Fig. 2



AMMONITES HYPERBOLICUS, SIMPSON-LECKENBY, 1859  
Sedgwick Museum, Cambridge (Leckenby Coll.), Holotype  
Fig. 1, Apertural view ; Fig. 2, Peripheral view ; both  $\times 0.94$

PHLYCTICERAS HYPERBOLICUM, SIMPSON-LECKENBY SP.



## SPECIES OF PHLYCTICERAS

(Read "sp." after authors' names)

S. 78, 56, 109, 0.	P. hyperbolicum, Simpson-Leckenby, Y.T.A. 98.
F. 25, 54, 85? 9.	P. pustulatum, Reinecke, 1818, f. 63, 64.
F. 24.5, 46, 64, 22.	P. nodosum, Quenstedt. <i>Am. pust. nodosus</i> , Quen. 1887, LXXXVI, 13.
F. 31, 50, —, 23.	Cf. <i>Am. pustulatus</i> ; d'Orb. 1847, CLIV, 3.
F. 15.5, 58, 61, 11.	P. franconicum, Quenstedt. <i>Am. pust. franconicus</i> , Quen. 1846, IX, 22.
F. 88, 51, 54, 20.	Cf. <i>Am. pustulatus</i> , d'Orbigny, 1847, CLIV, 1, 2.
F. 28, 47, 60, 20.	P. polygonium, Zieten, 1831, xv, 6.
F. 31, 49, 49, 19.	P. suevicum, Quenstedt. <i>Am. pust. suevicus</i> , Quen. 1846, IX, 23.
F. { 36, 50, 49, 14 }	P. lachati, Par. & Bon. 1895, II, 3.
F. { 79, 46, 48, 21 }	P. <b>waageni</b> , nov., Type, <i>Amaltheus pustulatus</i> ; Waagen, 1875, IX, 2.
F. 90, 49, 44, 22.	P. parkinsoni, Quenstedt. <i>Am. pust. parkinsoni</i> , Quen. 1887, LXXXVI, 7.
F. 20, 44, 37, 24.	P. cristagalli, d'Orb. 1847, CLIII, 1, 2.
F. 46, 45, 33, 27.	P. giganteum, Quenstedt. <i>Am. pust. giganteus</i> , Quen. 1887, LXXXVI, 6.
F. 148, 51, 31, 20.	P. <b>paronai</b> , nov., Type, <i>Am. pustulatus</i> ; Quenstedt, 1887, LXXXVI, 1.
F. 62, 54, 30, 15.	P. schauburgi, Waagen, 1875, IX, 1.
F. 116, 45, 29, 18.	

The separation of many of these species was pointed out by Parona and Bonarelli, 1895, pp. 90, 91.





99. SUBTENSIS,  
AMMONITES  
PELTOCERAS

99. AMMONITES SUBTENSIS, BEAN  
(Plates XCIXA, B)

*Original Description*

[Leckenby, *Q.J.G.S.*, xv, 1859, pp. 7, 10.]

"[P. 7.] Fossils of the Kelloway Rock of Yorkshire. . . .  
Ammonites Arduennensis, *D'Orbigny*."

"[P. 10.] 10. AMMONITES ARDUENNENSIS (?), D'ORBIGNY."

"*Ammonites subtensis*, Bean, MS."

"The ribs are much more delicate and numerous than in *D'Orbigny's* figure, but there are no other distinctive features."

"*Locality*. The Castle Rock, Scarborough."

*Remarks.*

There are 3 specimens in the Sedgwick Museum, Cambridge (Leckenby Coll.), with original labels, presumably Leckenby's MS, "Am. subtensis, Bean, Kel. Rock, Scarboro' Castle." To the largest is added "very large ex." To the smallest "attains 7 in. diameter." There is another specimen in the Whitby Museum, No. 1382, labelled "Am. subtensis." All these, but certainly the three from Cambridge, may be regarded as Bean's syntypes. It seems advisable to take the largest as the lectotype.

*Proportions:*

I.	176,	30,	22,	45.	} Sedgwick Mus. Cambridge. Whitby Mus.
II.	92,	30,	23,	45.	
III.	39,	33,	25,	41.	
IV.	34,	34,	26,	40.	

Subplaty-, sublepto-gyral; perlatumumbilicate.

Stages, conch, serpenticone; periphery, 1; ornament, 4 to 5\* to almost 5\*\*.

The ornament is regular versiradiate costæ which bifurcate about the middle of the lateral area, with occasionally one entire. About 75 mm. diameter furcation tends to disappear, and less numerous single ribs, each ending in a spine, are developed; later, ribs fail in middle lateral area, when there are spines on peripheral border and swellings on inner area.

Periphery in first stage regularly costate; in second, distantly costate with smaller intermediate costæ, relics of the last furcate ribs; in third stage, smooth.

Suture-line,  $L^1$  large, feebly tripartite;  $L^2, 3, 4$  all very small, forming hanging umbilical lobe which is barely as long as  $L^1$ .

Genus *Peltoceras*, Waagen; family Aspidoceratidæ.

The position of the furcation separates it from *Am. arduennensis*, *d'Orbigny*, and from many other species. Geological position, "Kelloway Rock" of Leckenby. The large specimen is much ironstained, and is from a brown calcareous matrix with distinct iron grains and some iron sand. The smaller example from a grey calcareous oolitic matrix (See S. BUCKMAN, *Q.J.G.S.*, 1913, 154).

*Result*

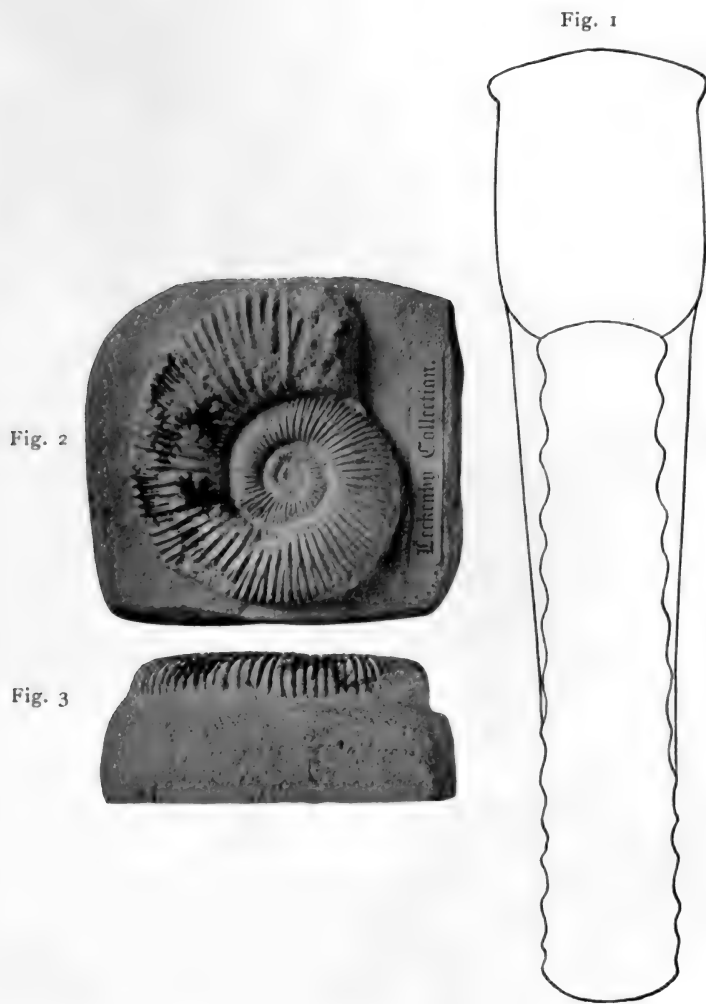
PELTOCERAS SUBTENSE, BEAN sp. 1859, Callovian, *athleta* zone, The Castle Rock, Scarborough.



AMMONITES SUBTENSIS, Bean (Leckenby, 1859)  
Sedgwick Museum, Cambridge (Leckenby Coll.), Lectotype. Side view

PELTOCERAS SUBTENSE, BEAN SP.





AMMONITES SUBDENSIS, BEAN (LECKENBY, 1859)  
Sedgwick Museum, Cambridge (Leckenby Coll.)

Fig. 1, Outline apertural view of Lectotype (Pl. XCIXA)  $\times 0.7$   
Fig. 2, Side view; Fig. 3, Peripheral view of Syntype



*Comparable Species*

(Selected by Mr. V. E. Robson)

176	30	22	45
-----	----	----	----

*Am. athleta*; d'Orbigny, 1847, CLXIII, 5 — F. 82, 30, —, 48.*Peltoceras semirugosum*, Waagen, 1875, XIV, 1, 1a — F. 79 (158),  
33, 28 [over lower spines], 45; 2, 2a — F. 42, 37, 29, 36.

<i>P. propinquum</i> , Id. XVI, 1—F.	{	66 (132), 30, 22, 50 [between spines]
		66 (132), 30, 29, 50 [over lower spines]





100. FINITIMUM,

ÆGOCERAS

PARECHIOCERAS

100. *ÆGOCERAS*? *FINITIMUM* (Bean MS.), BLAKE  
(Plates CA, B.)

*Original Description*

[J. F. BLAKE, Ceph., in Tate & Blake, 1876; pp. 273, 274.]

"[P. 273] *Ægoceras* (?) *finitimum*, *Spec. nov.*

"Pl. VI, fig. 9.

"Nearly allied to *Æg. varicostatum*, but having more the appearance of *Arietites semicostatus*.

"[P. 274] The front is elevated, and the numerous strong ribs run to an angle in the middle, where, however, they become less marked and are subordinate to the pseudo-keel, to which they are joined. The ribs are closer together than in *Æg. varicostatum*, and the whorls are more inflated. In another specimen there is a tendency to a tubercle at the turn of the ribs. I have only seen two examples of this in the Leckenby Collection under the name *finitimus*, Bean MS., which I have adopted.

"Geological position.—Probably zone of *A. Bucklandi*, Robin Hood's Bay."

*Remarks*

Proportions, 37, 24, 25, 57; substeno-, sublepto-gyral; sub-extremilatumbilicate.

Stages, conch, serpenticone; periphery, 3; ornament, 4.

The rounded venter carries slightly v-shaped ribs, whose apices are connected by a low carina. The ribs on the sides of the early whorls are somewhat strong and somewhat distant for a young stage: they resemble the beadlike ribbing of the young stage of *Gagaticeras gagateum* (Y.T.A. 78); and so the inner whorls have an appearance quite distinct from those of *Echioceras*, with their many small, very approximate ribs.

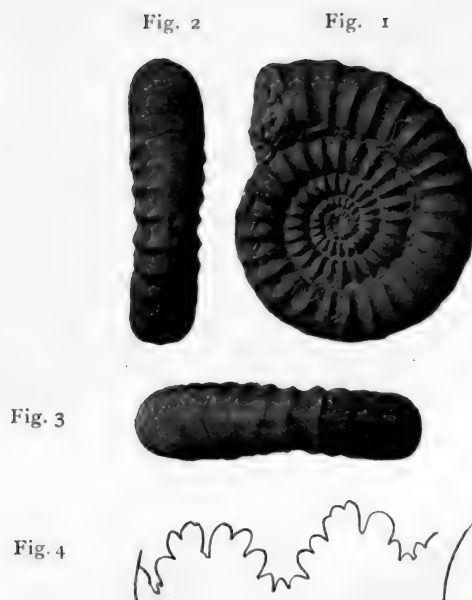
In the last whorl the ribs approximate and lose strength.

The suture-line is of a simple pattern, with broad and shallow lobes and saddles.

Genus, *Parechioceras*, (II, ix); family, Echioceratidæ, (II, v). Geological position, presumably L.L. 13: the position suggested by Blake is too low.

*Result*

*PARECHIOCERAS FINITIMUM*, BEAN-BLAKE sp. 1876, Sinemurian, [*oxynotum* zone], Robin Hood's Bay, near Whitby.



*ÆGOCERAS* (?) *FINITIMUM*, BEAN-BLAKE, 1876  
Sedgwick Museum, Cambridge (Leckenby Coll.), Holotype  
Fig. 1, Side view ; Figs. 2, 3, Peripheral views ; Fig. 4, Suture-line  $\times 4$



Fig. 2



Fig. 1



PARECHIOCERAS FINITIMUM, BEAN-BLAKE SP.  
C. Thompson Coll. Drift, Holderness, Yorkshire  
Fig. 1, Side view ; Fig. 2, Peripheral view

PARECHIOCERAS FINITIMUM, BEAN-BLAKE SP.



## SPECIES OF PARECHIOCERAS

T. 25,	22,	21,	60.	P. pauli, Dumortier sp. 1867, xxix, 5, 6.
F. 28,	21,	20,	60.	Cf. <i>Am. pauli</i> ; Reynes, 1879, xli, 16, 17.
S. 47,	25,	25,	52.	P. neglectum, Simpson sp. Y.T.A. 101. A development of <i>P. pauli</i> .
F. 67,	20,	23,	62.	P. <i>haueri</i> , n., Type, <i>Am. raricostatus</i> ; Hauer, 1856, xvi, 10-12; perhaps a development of <i>P. neglectum</i> .
S. 37,	24,	25,	57.	P. finitimum, Bean-Blake sp., Y.T.A. 100 A development of <i>P. pauli</i> .
T. 43,	24,	20,	F. 65.	P. boblayei, d'Orbigny, 1843, xli. Possibly a cripple development of <i>P. finitimum</i> , which has lost or not produced the keel.
F. 96,	21,	12,	63.	P. charpentieri, Schafhäütl sp. 1847 (1851, xvi, 22). "Kräftige Nebenfurchen," Böse 1894, 729. Possibly a carinatusulcate development of <i>P. haueri</i> .

*Genus uncertain*

F. 32,	24	39,	52.	<i>Am. raricostatus</i> , Zieten, 1831, xiii, 4. Possibly a carinate development of <i>Gagaticeras</i> . Appears to be neither <i>Echioceras</i> nor <i>Parechioceras</i> , unless the drawing be very incorrect.
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101. NEGLECTUS,  
AMMONITES,  
PARECHIOCERAS

101. AMMONITES NEGLECTUS, SIMPSON  
(Plate CI)

*Original Description*

" 38. A[mmonites] neglectus. [M. SIMPSON, 1855, pp. 45, 46.]

[" I. Without a dorsal keel or furrow.

a. *No spines.*" p. 35.]

" Volutions 7 or 8, exposed ; radii prominent, separated by widish concave spaces, slightly bend towards the aperture on the back near [p. 46] an elevated line or imperfect keel ; aperture circular ; diameter  $1\frac{3}{4}$  inch.

" The shell is rough, with a few annular striæ. It is more depressed than *A. gagateus*, which it much resembles. L.L. ; R. H. Bay."

SIMPSON, 1884, 76, the same.

*Remarks*

Proportions, 47, 25, 25, 52 substeno-, sublepto-gyral, subextremi-latumbilicate.

Stages, conch, serpenticone ; periphery, 3 ; ornament, 4.

The rounded periphery carries slightly v-shaped ribs, their apices connected by a low carina.

The rib characters of sides of inner whorls are like those of *P. finitimum* (No. 100). In later whorls the ribs maintain their strong and distant character, and in side view, so far as ribbing goes, the likeness to *G. gagateum* is considerable : the periphery, however, differs decidedly.

Genus, *Parechioceras*, (II, ix) ; family, *Echioceratidæ* (II, v).

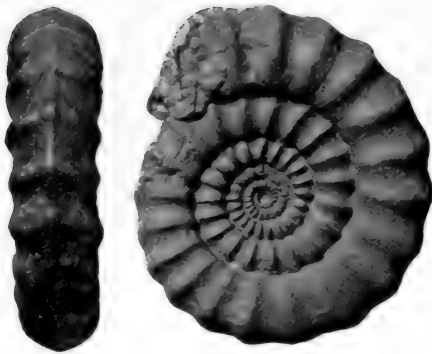
Geological position, presumably L.L. 13 with *G. gagateum*, for matrix and condition are similar.

*Result*

PARECHIOCERAS NEGLECTUM, SIMPSON sp. 1855, [Sinemurian, *oxy-notum* zone], Robin Hood's Bay, near Whitby.

Fig. 2

Fig. 1



AMMONITES NEGLECTUS, SIMPSON, 1855  
Whitby Museum, No. 98. Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view



*Comparable Species*

47	25	25	52
----	----	----	----

See No. 100.



102. HASTATUS,  
AMMONITES  
DEROCERAS

## 104. AMMONITES HASTATUS, YOUNG &amp; BIRD

Plates CIIA, B.

*Original Description*

[YOUNG &amp; BIRD, 1828, pp. 261, 262, 359.]

[P. 261.] "No. 3, Pl. XIV, is another rare ammonite that comes near to Sowerby's *A. armatus*, particularly in having striated spines; the striae on the sides converging (as described by him) towards the apex of each spine, and then diverging from it across the back: but in other respects it differs greatly from what he describes; for though it is a young, or at least a small shell, it is so far from being "plain and without the spines," that it has very long spines, where they are entire, continued on the interior whorls, and gradually diminishing to the centre; nor do they bend over the back, as shewn in Sowerby's figure, but rise from the sides nearly at right angles. The aperture is transversely ovate, the whirl being much broader on the back than on the side. The long [p. 262] spine, No. 4, is attached to a fragment of a larger ammonite of a similar shape, which has\*probably been of this species. The spine appears to have been, when entire, about two inches long, so that the ammonite furnished with rows of such spines would have a very formidable aspect. To this species we may give the name *A. hastatus*; leaving the title *A. armatus* to No. 2, [Pl. XIV], as coming nearest to that so called by Mr. Sowerby."

[P. 359.] "Plate XIV. *Ammonites*. P. 258, etc.  
FIG.

3. *A. hastatus*. Ditto. [Lias bands.]

4. Fragment of ditto with a long spine. Ditto."

*Additional Details*

SIMPSON, 1855, p. 65.—"92. *A. hastatus*, Y. & B. . . diameter 6 in[ches] . . . L.L.; R. H. Bay."

*Remarks*

Proportions, 153, 23, 29, 58; substeno-, subpachy-gyral; sub-extremilatumbilicate.

Stages, conch, serpenticone; periphery, 1; ornament, 5.

Whorls obtrapeziform; rugosities leading to spines not pronounced; over all small rib-like markings which are strong and distinct on the slightly arched venter. About three-eighths whorl is body-chamber, with 5 spines all septate, but the last rises much before showing septum; the septum is on the top of what is shown as spine.

The example now illustrated is the original of Simpson's description: it also agrees well with Young & Bird's description, particularly in regard to the direction of the spines. One difficulty is the use of the words "small shell." This, however, may be relative: as allied species attain a diameter of 16 inches and more, this example might merit the title small shell in distinction. Compared with their figure, it shows fewer spines, but the costate venter agrees.

Genus, *Deroceras*, Hyatt; family Deroceratidæ. Geological position, presumably with the other *armati*.

*Result*

DEROCERAS HASTATUM, YOUNG & BIRD sp. 1828, Charmouthian, *armatum* zone, Robin Hood's Bay, near Whitby.





AMMONITES HASTATUS, YOUNG & BIRD, 1828  
Whitby Museum, No. 661, Holotype? Side view  $\times 0.75$

DEROCERAS HASTATUM, YOUNG & BIRD SP.



Fig. 1

Fig. 2



AMMONITES HASTATUS, YOUNG & BIRD, 1828, SIMPSON, 1855  
Whitby Museum, No. 661, Holotype?

Figs. 1, 2, Apertural views,  $\times 0.75$

DEROCERAS HASTATUM, YOUNG & BIRD SP.



*Comparable Species*

153	23	29	58
-----	----	----	----

See Nos. **44, 64, 65, 71, 72, 82-84, 94, 95.**





# GENERA OF SOME JURASSIC BRACHIOPODA

By S. S. BUCKMAN, F.G.S.

The genera are founded in the main on a study of internal details as revealed by burning, though relative external development has also been taken into consideration.

Genotypes are written with sp. to denote that the species to be subsequently figured in a larger work will be the actual types, in case of questions of misidentification.

## Family, RHYNCHONELLIDÆ

These Rhynchonellidæ are divisible into three main series—*Læves*, *Capillatæ*, *Ornatæ*. *Læves* are smooth and develop ribs directly on a smooth stage; *Capillatæ* have hair-like lines (striæ) and then may develop ribs; and *Ornatæ* have additional ornament like imbrication, or spines.

The type of *Rhynchonella*, *R. loxia*, Fischer, is one of the *Capillatæ*. The *acuta* group which so much resembles it belongs to the *Læves*, and so must be removed. The result is that *Rhynchonella* which once covered hundreds of species from the Ordovician to Recent, must now be confined, so far as present knowledge goes, to one species, *R. loxia*. Cretaceous developments may be looked for; but many Cretaceous species belong to *Cyclothyris*, M'Coy, distinguished by obsolete or obsolescent dorsal septum and broad dorsal muscle-scars.

GENERA	GENOTYPES	REMARKS
<i>LÆVES</i>		
<i>Pisirhynchia</i>	<i>R. pisoides</i> , Zittel	
<i>Holcorhynchia</i>	<i>R. standishensis</i> , S. Buckm.	
<i>Gnathorhynchia</i>	<i>G. liostraca</i> , S. Buckm. sp.	
<i>Calcirhynchia</i>	<i>C. calcaria</i> , nov.	<i>R. calcicosta</i> ; Dav. series
<i>Sphenorhynchia</i>	<i>S. plicatella</i> , Sow. sp.	
<i>Kallirhynchia</i>	<i>K. yaxleyensis</i> , Dav. sp.	
<i>Tropiorhynchia</i>	<i>T. thalia</i> , d'Orb. sp.	
<i>Piarorhynchia</i>	<i>P. radstockensis</i> , Dav. sp.	
<i>Cuneirhynchia</i>	<i>C. dalmasi</i> , Dum. sp.	
<i>Curtirhynchia</i>	<i>C. oolitica</i> , Dav. sp.	
<i>Homæorhynchia</i>	<i>H. acuta</i> , Sow. sp.	
<i>Rhynchonelloidea</i>	<i>R. ruthenensis</i> , Reynès sp.	
<i>Costirhynchia</i>	<i>C. costigera</i> , nov.	<i>R. subringens</i> , Dav. series
<i>Grandirhynchia</i>	<i>G. grandis</i> , nov.	
<i>Tetrarhynchia</i>	<i>T. tetraedra</i> , Sow. sp.	
<i>Quadratorhynchia</i>	<i>Q. quadrata</i> , nov.	
<i>Gibbirhynchia</i>	<i>G. gibbosa</i> , nov.	<i>R. amalthei</i> ; Dav. series
<i>Rudirhynchia</i>	<i>R. rudis</i> , nov.	<i>T. calcicosta</i> , Quen. series
<i>Stolmorhynchia</i>	<i>S. stolidota</i> , nov.	
<i>Ptyctorhynchia</i>	<i>P. pentapticta</i> , S. Buckm. sp.	
<i>LÆVES ?</i>		
<i>Globirhynchia</i>	<i>G. subobsoleta</i> , Dav. sp.	
<i>Rhactorhynchia</i>	<i>R. rhacta</i> , nov.	<i>R. subtetrahedra</i> , Dav. series



# YORKSHIRE TYPE AMMONITES

EDITED BY

S. S. BUCKMAN, F.G.S.

The original descriptions reprinted, and illustrated by figures of the types  
reproduced from photographs mainly by

J. W. TUTCHER

## Part XIV

8 Plates, and Descriptions Nos. 103—108

LONDON:  
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28 ESSEX STREET, STRAND

1914

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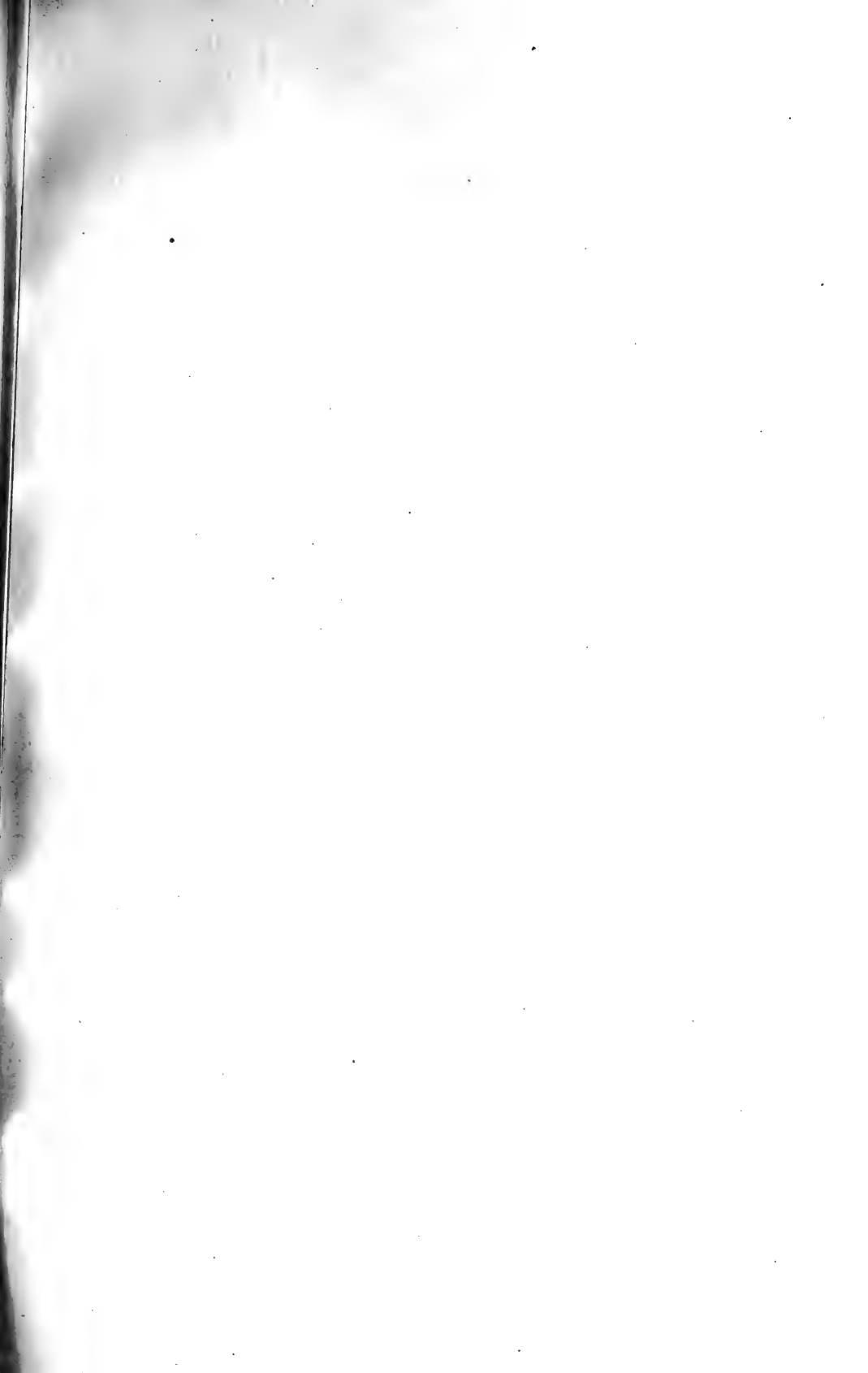
### *Descriptions :—*

103.	A. spicatus .. .. .	Plate	CIII
104.	D. impavidum .. .. .	,,	CIV
105.	A. mutatus .. .. .	,,	CV
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108.	A. heptangularis .. .. .	,,	CVIIIA, B, C

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103. SPICATUS,  
AMMONITES  
DEROCERAS

103. AMMONITES SPICATUS, SIMPSON  
(Plate CIII)

*Original Description*

"46. A[mmonites] spicatus. [M. SIMPSON, 1843, p. 28.]

"I. Without a dorsal keel or furrow." p. 7.

"b. Armed with spines or distinct tubercles." p. 22.]

"In the Whitby Museum there is the outer whorl of another [besides *A. Hamiltoni*], (12 inches in diameter) which I have named *A. spicatus*. It has had powerful 4 or 5 sided spines, upon the outer edge of the whorl. A small portion of the shell remains, which exhibits none of the annular striæ observable in the other armed species; but on the back of the cast, in some places, I see faint markings running lengthwise, and undulating near the knobs. The aperture appears to have been quadrate, but one side of the shell is entirely destroyed; it is from the Ironstone beds. There is a mark on the inner part of the whorl, which looks like the impression of a keel.

There is also in the same Museum about half of another whorl (16 inches diameter), which has the portion near the aperture much flattened, and, at the other end of the segment, the aperture is obtusely triangular, with the apex towards the inner whorl slightly truncated. Near the aperture, the spines are merely tubercles, gradually increasing inwards, with scarcely any appearance of radii. In several places the shell may be seen in very brilliant colours, and on the outside smooth; but on the inside, are to be observed distinct striæ running longitudinally along the back, and undulating near the knobs."

[SIMPSON, 1855, 65, 66, and 1884, 98, describes quite a different species—see next article.]

*Remarks*

Proportions, (240, 25, 14, 57)? substeno-, lepto-gyral; sub-extremilatumbilicate.

Stages, conch, serpenticone; periphery, 1; ornament, 5.

Whorls are broad and thin—the specimen has suffered somewhat from crushing; aperture somewhat oblong; spines rather large, rising somewhat suddenly from obscurely costate side; venter plain, with fine wavy longitudinal lines.

The type is a fragment from near the end of the body-chamber, as the spines are not septate. It would appear not to be part of so large a specimen as Simpson supposed.

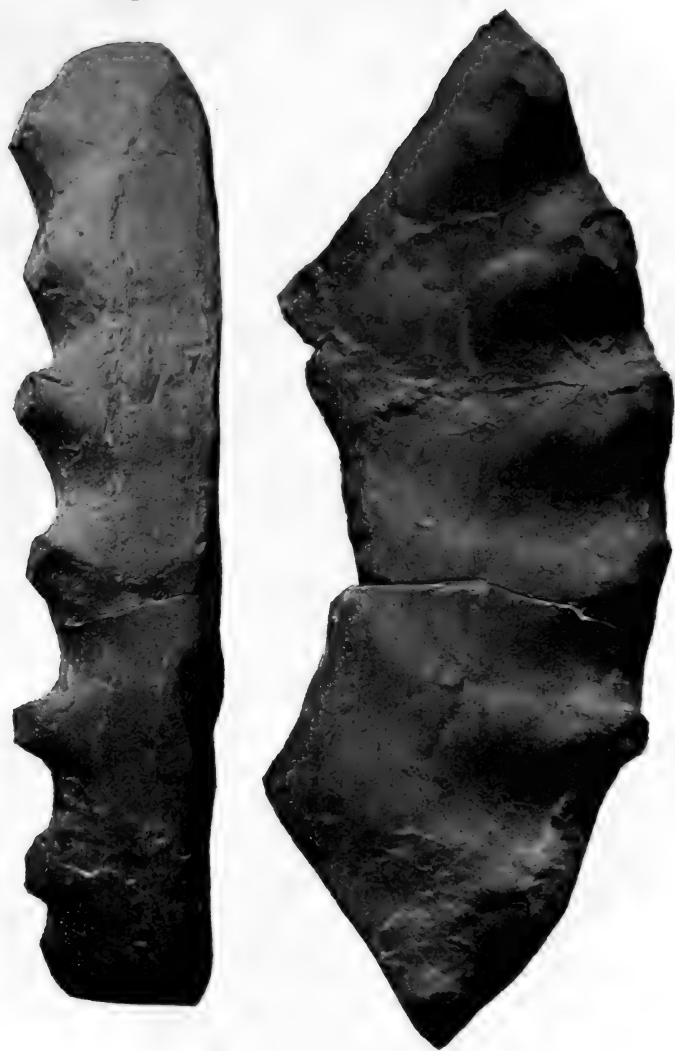
Genus *Deroceras*, Hyatt; family *Deroceratidæ*. Geological position, presumably L.L.y.

*Result*

*DEROCERAS SPICATUM*, SIMPSON sp. 1843, Charmouthian, [*armatum* zone, Robin Hood's Bay, near Whitby].

Fig. 2

Fig. 1



AMMONITES SPICATUS, SIMPSON, 1843  
Whitby Museum, No. 920, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view ; both  $\times 0.8$





*Comparable Species*

(240      25      14      57) ?

*Am. spicatus* ; Simpson, 1855, p. 65. Y.T.A. civ—S. 198, 22, 23, 60.*Am. nodogigas*, Quenstedt, 1855, XIV, 8—(F. 68, 26, 22, 55) ?

1884, XXV, 4—(F. 72, 32, —, 50) ?

*Deroceras pugnax*, nov. =*Am. armatus*, Wright, XXIX—S. 260, 24, 20, 54.

And see Nos. 44, 64, 65, 71, 72, 82-84, 94, 95, 102, 104, 105.



104. IMPAVIDUM,

DEROCERAS

## 104. DEROCERAS IMPAVIDUM, nov.

(Plate CIV)

*Description*

[M. SIMPSON, 1855, pp. 65, 66]

" 93. *A. SPICATUS*, *Simp.*—Volutions 9, exposed, outer whorl more than one-fifth the diameter, inner edge prominent, back rounded, sides flattish; radii on the inner whorls numerous, more distant and stronger on the outer, end in strong spines on the outer edge of the whorls, pointing outwards; spines strong, [p. 66] angular, often with a single groove; transverse striæ on the inner whorls, and on the back, numerous, obsolete on the outer whorls; aperture transverse, rounded, or subquadrate; diameter  $7\frac{1}{2}$  inches.

" This is one of the species noticed by Young, as approaching near to *A. armatus*, Sow. It is, however, a coarser species, and besides other characters, the outer whorls are narrower in proportion, the radii more distant and stronger, and the spines become very powerful, separated by deep concavities.—L.L.

" SIMPSON, 1884, 98, adds after name "*Pal.*, pl. xxix" [Wright, *Mon. Lias Amm.*].

*Remarks*

Proportions, 198, 22, 23, 60, (thickness to base of spines); substeno-, sublepto-gyral; subextremilatumbilicate.

Stages, conch, serpenticonic; periphery, 1; ornament, 5.

Whorls are almost squared, and only just in contact. Rugosities on sides strong, broad, wave-like, occasionally sulcated, leading up to large regular spines on edge of a worn and damaged, but apparently smooth periphery (outer whorl). Body-chamber complete, with portion of plain mouth at inner edge—the chamber just over a whorl in length.

Spines are septate on air-chambers, and so are the first three spines of body-chamber: the septum higher up successively in each. After these the spines appear to contain no septum.

This is the species described by Simpson in 1855 as *A. spicatus*, but it differs from the species of 1843 by narrower, thicker whorls and by the stronger rugosities on the sides. From *A. hastatus*, Young & Bird, this species has whorls thinner and more quadrate, and spines more radially projected.

Geological position would be presumably L.L.y.

*Result*

DEROCERAS IMPAVIDUM, nom. nov. Charmouthian, [*armatum* zone, Robin Hood's Bay, near Whitby].

Fig. 1



Fig. 2



AMMONITES SPICATUS, SIMPSON, 1855  
Whitby Museum, No. 166, Heautotype  
Fig. 1, Side view ; Fig. 2, Apertural view ; both  $\times 0.62$



*Comparable Species*

198	22	23	60
-----	----	----	----

See Nos. 44, 64, 65, 71, 72, 82-84, 94, 95, 102, 103, 105.





105. MUTATUS,

AMMONITES

DEROCERAS

105. AMMONITES MUTATUS, SIMPSON  
(Plate CV)

*Original Description*

"88. A[mmonites] mutatus. [M. SIMPSON, 1855, pp. 63, 64.]

[I. Without a dorsal keel or furrow." p. 35.

b. *Armed with spines or distinct tubercles.* p. 58.]

"[P. 63] Volutions 6, inner ones  $\frac{1}{4}$  concealed, outer whorl  $\frac{1}{3}$  the diameter; radii on the inner whorls strong, obtuse, ending in a distinct knob or tubercle, on part of the outer whorl numerous, fine, irregular, annular; aperture an ellipse; diameter 1 inch and eight-tenths.

"[P. 64] This is a smooth, neat ammonite of a greyish colour. Several of the radii on the inner whorls have a slight groove, running into the knobs; in some places the grooves go past the knobs, and form additional radii, without knobs; the radii on the outer part of the outer whorl, in places, are little more than annular striæ, and the tubercles become obsolete. It appears to be from the lower lias.—Mr. Clarkson's Col."

SIMPSON, 1884, 96, typographic alterations only.

*Remarks*

Proportions, 46, 36, 26? 47; platy-subpachygyral, perlatumbilicate.

Stages, conch, serpenticone; periphery, 1; ornament, 5 to 3c, rapid decline.

There is a regular coronet of spines to 31 mm. diameter; then rather sudden loss. The tubercled whorls are obtrapeziform; the costate whorl elliptical. The peripheral view is imperfect owing to damage on one side.

Genus, *Deroceras*, Hyatt; family Deroceratidæ.

Geological position presumably Simpson's L.L.y.

*Result*

DEROCERAS MUTATUM, SIMPSON sp. 1855, Charmouthian, [*armatum* zone, near Whitby].

Fig. 1



Fig. 2



AMMONITES MUTATUS, SIMPSON, 1855  
Jermyn St. Museum, No. 26,406 (Clarkson Coll.), Holotype  $\times 1.06$   
Fig. 1, Side view ; Fig. 2, Peripheral view (somewhat crushed)



*Comparable Species*

46      36      26 ?      47.

See Nos. **44, 64, 65, 71, 72, 82-84, 94, 95, 102-104.**



106. OVATULUS,  
AMMONITES  
ELEGANTULICERAS

106. AMMONITES OVATULUS, SIMPSON  
(Plate CVI)

*Original Description*

" 124. A[mmonites] ovatulus. [M. SIMPSON, 1855, p. 76.]

[" II. With a keel on the back.

" a. Outer whorl broad." p. 72.]

" Nearly the same characters [as A. ovatus, Y. & B.], but the outer whorl much broader. It cannot be the young of the last [A. ovatus], as it occurs in a bed lower in the series, along with A. elegantulus; diameter  $1\frac{1}{4}$  inch."

*Additional Details*

SIMPSON, 1884, 112, adds " U.L., 7."

*Remarks*

Proportions, 34, 46, 27, 24; perplaty-, subpachygyral, subangustumbilicate.

Stages, conch, platycone; periphery 3 (3c?); ornament, 3c.

Sides of whorls slightly gibbous, thickest about the middle; carina hollow, sharp, elevated, defined, with signs of accompanying ventral depressions. Inner margin sloping, subconcave. Ornament obscure subcostæ.

The specimen is poor, and the middle is not exposed.

Genus, *Elegantuliceras* (II, viii); family Hildoceratidæ.

*Result*

ELEGANTULICERAS OVATULUM, SIMPSON sp. 1855, Whitbian, *exaratum* zone [near Whitby].



Fig. 1



Fig. 2



AMMONITES OVATULUS, SIMPSON, 1855  
Whitby Museum, No. 235, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view



*Comparable Species*

34	46	27	24
----	----	----	----

*Am. elegantulus*, Simpson, Y.T.A. 93—S. 37, 49, 28, 24.

*Harpoceras primordiale*; Blake, 1876, II, 7—F. 62, 43, —, 29.

*Am. capillatus*, Denckmann, 1887, IV, 3—F. 52, 43, 24, 26.



107. GRACILIS,

AMMONITES

DACTYLIOCERAS

107. AMMONITES GRACILIS, SIMPSON  
(Plate CVII)

*Original Description*

"[30] d. A[mmonites] gracilis. [M. SIMPSON, 1843, p. 20.]

"[I. Without a dorsal keel or furrow.

"a. No spines. p. 7."]

"This has the general characters of *A. communis*; but the whorls are more slender and numerous, and the sides rather flattened. The radii are more regular and better defined. It is from the upper Lias at Peak, where it is rather plentiful. In examining a great many of these, I generally found a chamber near the aperture, of great length, and often hollow. This circumstance leads me to think, that it may still be a distinct species; and not the young of *A. communis*.

*Additional Details*

SIMPSON, 1855, p. 54,—“57. *A. GRACILIS*, *Simp.*—Volutions 6, exposed, slender, sides rather flattened; radii regular, distinct, aperture subquadrate; diameter  $3\frac{1}{4}$  inches.—Jet-rock, U.L.

"These are found in masses, and are best distinguished by the slenderness of the whorls. They are generally casts, and where the shell remains, it is of a brown colour. In examining a great many of these, I generally found a chamber near the aperture, of great length, and often hollow."

This description is placed under the following heading, p. 50:—

"The following species, to the end of the Section, have all a family resemblance to *A. communis*:—

"Whorls narrow, exposed, with numerous slender, annular ribs, which generally split in two on the back."

SIMPSON, 1884, 85, as 1855, but gives diameter as "three-quarters of an inch."

*Remarks*

Proportions, 21, 26, 26, 51; subplaty-, subpachygyral, sub-extremilatumbilicate.

Stages, conch, serpenticone; periphery, 1; ornament, 5.

Whorls subquadrate, with flattened sides. Periphery slightly arched and with a slight median elevation. Ribs distinct, mostly bifurcate, occasionally entire; small tubercle at junction; secondaries with very slight forward bend.

Genus, *Dactylioceras*, Hyatt; family, *Dactyloidea*, Hyatt.

*Result*

DACTYLIOCERAS GRACILE, SIMPSON sp. 1843, Whitbian, *exaratum* zone, Peak, near Whitby.

Fig. 1



Fig. 2



AMMONITES GRACILIS, SIMPSON, 1843  
Whitby Museum, No. 488, Holotype  
Fig. 1 Side, view ; Fig. 2, Apertural view





*Comparable Species*

21            26            26            51

*Stephanoceras gracile* ; Blake, 1876, VII, 8—F. 22, 29, [T. 29], 51.

See also Nos. 31, 51, 58, 62, and especially 68.



108. HEPTANGULARIS,  
AMMONITES  
LIPAROCERAS

108. AMMONITES HEPTANGULARIS, YOUNG & BIRD  
(Plates CVIII A, B, C)

*Original Description*

[YOUNG & BIRD, 1828, pp. 263, 359.]

"No. 1, Pl. XIV, is a very rare and singular shell, from the Hawsker shore, armed with a double row of spines, placed on angular ridges on the sides. Between the two rows are irregular ribs, running from the inner knobs to the outer; and each generally splits into two elevated ribs on the back, partly fimbriated; whereas on the inner part of the whirl, within the interior row of knobs, the ribs are replaced by numerous slender striæ. The space between the rows is also slightly striated. The whirls are few, the outer whirl being very large, and the central part forming a deep cavity, or umbilicus: the inner whirls are much concealed. The back is rounded, but seems to acquire an angle behind, near the aperture; which, therefore, approaches to heptangular. On this account, we may name this species *A. heptangularis*."

"[P. 359.] Plate XIV. fig. 1. *Ammonites heptangularis*. Lias bands.

*Remarks*

Proportions: 

{	98	47,	53,	20.
	162	47	46	27.

 Perplaty-, extremi-, to perpachygyral, angustumbilicate.

Stages, conch, subsphærocone; periphery, 1; ornament, 5\*\*.

The specimen, which has nearly complete body chamber, is in poor condition, with various displacements due to crushing. The angular piece of matrix which Young & Bird depict as extending from the aperture is seen on the right side of the specimen. On the same side is to be seen evidence for the tubercles which they show in the umbilicus.

Genus, *Liparoceras*, Hyatt; family Liparoceratidæ. Geological position is, according to Simpson, who describes this specimen as *A. Henleyi*, syn. *A. heptangularis*, diameter 7 inches (1855, 70; 1884, 105), M.L. x (1884, p. xviii); "this is from one of the beds which unite the Middle with the Lower Lias at R. H. Bay" (1884, 105). M.L. x seems too high. The specimen shows spotting like that of *A. maculatus*, and therefore L.L. a—c may be suggested.

*Result*

LIPAROCERAS HEPTANGULARE, YOUNG & BIRD SP. 1828, Char-mouthian, [*striatum* zone], Hawsker, near Whitby.



AMMONITES HEPTANGULARIS, YOUNG & BIRD, 1828  
Whitby Museum, No. 171, Holotype—Specimen figd. Pl. XIV, f. 1,  
Side view  $\times 0.64$

LIPAROCERAS HEPTANGULARE, YOUNG & BIRD SP.





AMMONITES HEPTANGULARIS, YOUNG & BIRD, 1828  
Whitby Museum, No. 171, Holotype—Specimen figd. Pl. XIV, f. 1  
Side view, Nat. size

LIPAROCERAS HEPTANGULARE, YOUNG & BIRD SP.





*Comparable Species*

{ 98	47	53	20 }
{ 162	47	46	27 }

*Nautilus striatus*, Reinecke, 1818, f. 66—F. 138 ? (69), 52, 70, 11 ?

*Am. cheltiensis*, Murchison, 1834, f. 1, (Pal. U. 67, 1905)—F. 98, 46, 64, 23.

*Am. henleyi*; d'Orbigny, 1844, LXXXIII,—F. 86, 43, 54, 23.

*Am. nautiliformis*, J. Buckm. 1844 (Y.T.A. 37)—S. 128, 57, 70, 9.

*Am. henleyi*; Dumortier, 1869, III, xvii, 1, 2—F. 68, 42, 62, 25.

*Aegoceras striatum*; Wright, 1881, XLII, 1-3—F. 136, 47, 56, 25; XLIII,—F. 225, 47, —, 23.

*Am. striatus zietenii*, Quenstedt, 1884, xxviii, 1-3—F. 66, 49, 65, 20.

And see Nos. 37, 46.



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## Part XV

Pages *xi*, *xii*; 8 Plates, and Descriptions Nos. 109—111

LONDON:  
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28 ESSEX STREET, STRAND  
1918

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109. CLEVELANDICUS,  
AMMONITES  
AMALTHEUS

109. AMMONITES CLEVELANDICUS, YOUNG & BIRD  
(Plate CIX)

*Original Description*

[YOUNG & BIRD, 1822, pp. 253, 327.]

"[P. 253]. No. 11, Pl. XIII, is another small, beautiful, and rare ammonite, from the beds corresponding with the Staiths band in the front of Cranimoor. It resembles *a. Maltonensis*, both in its shape and its markings; but its ribs are waved, and are less prominent, and extend across the whirl to near the crenulated keel, where they bifurcate. We may name this shell *a. Clevelandicus*."

"[P. 327]. Plate XIII . . . Fig. 11. *Ammonites Clevelandicus*. Alum Shale.

*Additional Details*

YOUNG & BIRD, 1828, pp. 267, 268, 359. "Of the thin discoid ammonites, with sharp keels, generally crenated, we have several species.—No. 7, Pl. XIII, from the hard bands of the Hawkser shore, corresponds with Sowerby's *A. excavatus*, Tab. 105. The keel, or thin edge, is crenated, the aperture is sagittate, and the inner edge of each whirl nearly perpendicular, and rather deep. The sides are marked with faint sigmoidal ribs, which in the young specimens, or interior whirls, are partly fimbriated. In our First Edition, we figured a small specimen under the name *A. Clevelandicus*. This last name may now be transferred to a small species in the same beds, which Mr. Sowerby seems to mistake for the young of *A. excavatus*. It has a smaller aperture, the outer [p. 268] whirl being not quite so broad; and the central part is not deeply sunk, as in *A. excavatus*, in which the interior whirls rapidly diminish in thickness."

"[P. 359] Plate XIII. . . . Fig. 7. [11]. *A. Clevelandicus*, (*excavatus*, Sowerby.) Lias bands."

*Remarks*

Proportions 118, 46, 18, 24: Perplaty-, subleptogyral, subangustumbilicate.

Stages, conch, oxycone; periphery, 2c; ornament, 4c. Rib continuously strong to undefined periphery, with short ribs intercalated on outer lateral border.

The specimen now illustrated (Pl. CIX) is not the holotype of 1822 but the heautotype of the description of 1828. There is, however, obviously a mistake in the explanation of Young & Bird's Pl. XIII (1828): Fig. 11 is *Am. clevelandicus* and not *Am. elegans*, while Fig. 7 is *Am. elegans* to which the artist has, by confusing the specimens he had represented, given the keel details of *Am. clevelandicus*. Thus Fig. 11 (Pl. XIII) of 1828 is practically the same as Fig. 11, 1822; and illustrates the holotype of *A. clevelandicus*; but Fig. 7 of 1828 represents some details of the heautotype of *A. clevelandicus* grafted on a drawing of *A. elegans*: it is a synthetograph.

Genus *Amaltheus*; Family *Amaltheidæ*. The species, however, differs from other similar-shaped *Amalthei* by the feeble projection of the radii on the periphery, the consequent lack of rostration, and by the obscureness of depressed areas parting periphery from sides. Thus the intercalated radii which make up the crenulations of the periphery are not confined to the indefinite keel but begin on the sides.

Fig. 1

Fig. 2



AMMONITES CLEVELANDICUS, YOUNG & BIRD, 1828  
Whitby Museum, No. 252, Heautotype—partly depicted Pl. XIII, f. 7  
Fig. 1, Side view; Fig. 2, Apertural view





The decay of rostration is presumably catagenetic, but in this case occurs while ribs are strong. In other *Amalthei* rostration is still pronounced after ribs have given place to smoothness. Generic separation of lineages of *Amaltheus* on these lines may hereafter be possible and desirable.

Geological position: Simpson (1884, xvii) gives Mid. Lias *t* with *Am. nitescens*, that is, *algovianum* zone.

#### Result

AMALTHEUS CLEVELANDICUS, YOUNG & BIRD sp., 1822, Domerian, *algovianum* zone, Hawsker, near Whitby, Yorkshire.

#### Comparable Species

118 46 18 24

F. 72, 47, —, 21, *Amaltheus margaritatus*; Wright, 1882, LVI, 15.

See also p. 25d and Appendix, p. C.



110. ELEGANS,

AMMONITES

PSEUDO-ELEGANS,

ELEGANTICERAS

110. AMMONITES ELEGANS, YOUNG & BIRD  
(Plate CX)

*Original Description*

[YOUNG & BIRD, 1822, pp. 251, 327.]

"[P. 251]. No. 7, Pl. XIII, corresponds with the *a. elegans* of Sowerby, Tab. 94, Fig. 1; having the same form, the same sigmoidal ribs, sharp keel, and truncated internal angles. It is not uncommon in the lias nodules. The specimen figured is small, but singular, having portions of the chambers hollow, containing when discovered a considerable quantity of oil.

"[P. 327]. Plate XIII. . . . Fig. 7. *Ammonites elegans*. Alum shale."

*Additional Details*

YOUNG & BIRD, 1828, pp. 267, 359. "No. 11, Pl. XIII, is another of this family [ammonites with sigmoidal ribs], corresponding with Sowerby's *A. elegans*, Tab. 94. 1. It is thin, slender ribbed, and has the inner angle of the whirl truncated, the truncated part generally forming a concave surface, like the groove in *A. angulatus* [Sowerby].

"[P. 359]. Plate XIII. . . . Fig. 11 [7]<sup>1</sup> *A. elegans*. Lias bands."

*Remarks*

The Yorkshire species is generically different from *A. elegans*, J. Sowerby, June, 1815. A topotype is now illustrated to which the name *Eleganticeras pseudo-elegans* has been applied (Y.T.A. II, 1913, p. viii). To this specimen, the genotype and holotype, the following description applies:—

Proportions, 89, 42, 22, 26; Platy-, subleptogyral, sublatumbilicate.

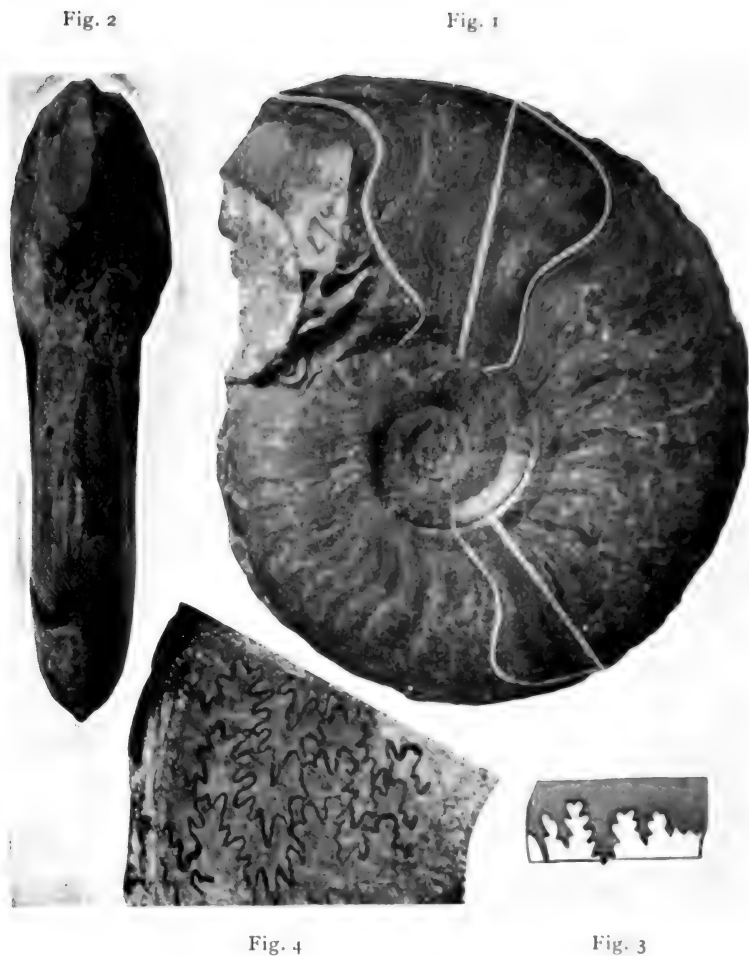
Stages, conch, platycone; periphery, 3c; ornament, 3c, 2c,—striate over and between obscure distant undulate subfalciform ribs, passing to striate only: the ribs where present about of equal strength across flat of whorl. Carina sharp, defined, septate; umbilicus subexcentric with sharply-defined concave margin. Suture-lines approximate—loculi quite short; accessory lobe in external saddle large, about equal to L2. Mouth-border, plain curve similar to rib contour.

Geological position, Jet Rock.

*Result*

ELEGANTICERAS PSEUDO-ELEGANS, S. BUCKMAN, 1913 (*Am. elegans*, YOUNG & BIRD, non SOWERBY), Whitbian, *exaratum* zone, Whitby, Yorkshire.

<sup>1</sup>See *Am. clevelandicus*, p. 109b.



AMMONITES ELEGANS; YOUNG & BIRD, 1822  
 S. Buckman Coll., No. 2748, Topotype  
 Fig. 1, Side view ; Fig. 2, Peripheral view ; Figs. 3, 4, Septal margins,  $4 \times 2$

ELEGANTICERAS PSEUDO-ELEGANS, S. BUCKMAN, 1913,  
 Holotype



*Comparable Species*

89 42 22 26

F. 77, 50, —, 24,—*Am. elegans*, Young & Bird, 1822, XIII, 7.F. 100, 45, 22, 19, } *Harpoceras elegans*; Wright, 1882, LXIII, 1-3.T. 100, 38, 20, 24, } *H. ovatum*; Wright, 1882, LXIII, 7, suture line,  
see S. Buckman, Geol. Mag. (3) III, 1886,  
p. 442.F. 112, 45, 17, 21,—*Am. elegans*; Denckmann, 1887, IV, 5.





III. OVATUS,

AMMONITES

OVATICERAS

## III. AMMONITES OVATUS, YOUNG &amp; BIRD

(Plates CXI A,B,C)

*Original Description*

[YOUNG &amp; BIRD, 1822, pp. 251, 327.]

"[P. 251]. No. 4, Pl. XIII, belonging to the same strata [as *a. mulgravius*], differs from No. 7 [*a. elegans*], chiefly in having the internal angles rounded, giving the aperture an oval form. Hence we may call it *a. ovatus*.

"[P. 327]. Plate XIII. Fig. 4. *Ammonites ovatus*. Ditto [Alum Shale]."

*Additional Details*

YOUNG & BIRD, 1828, p. 265. "No. 4, Pl. XIII, from the hard bands on the Hawsker shore, resembles *A. striatulus*, being marked with faint sigmoidal ribs, and numerous sigmoidal striæ, parallel to them. It is also keeled, and has an oval aperture; but its inner whirls are much more concealed, and its aperture is much larger, being more than one-third of the diameter. Where the shell is entire, the ribs are scarcely discernible, but only the striæ, which in the central part are curiously bent. This specimen, which is not common, we have named *A. ovatus*. It is sometimes 9 or 10 inches broad.

"[P. 359]. Plate XIII. . . . Fig. 4. *A. ovatus*. Ditto. [Lias bands]"

*Remarks*

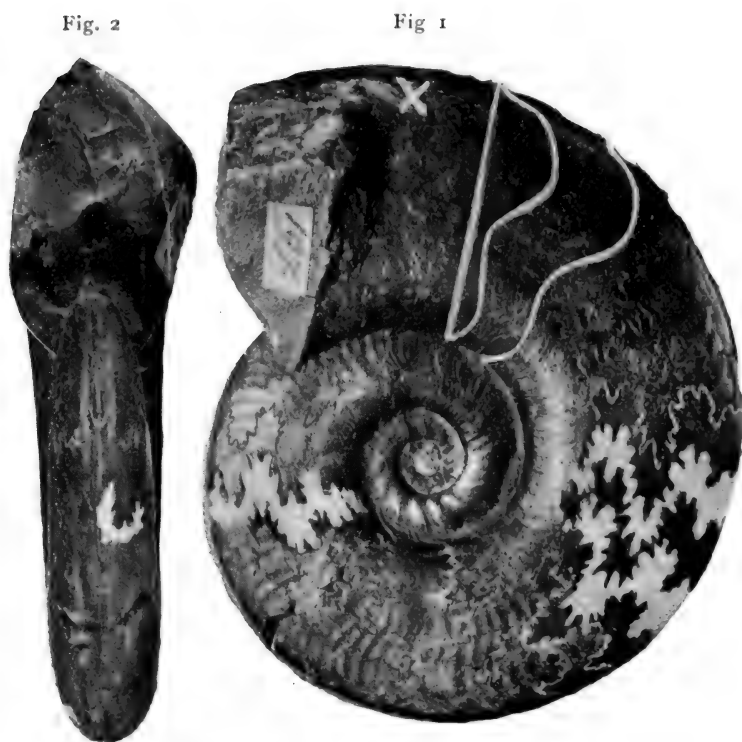
The 1828 example is not the same as that used for illustration in 1822. It also differs from it in many characters—it is more catagenetic, the subcostate stage ends about a whorl earlier passing into a stage of distant indistinct, undulate parvicostæ on cast, but on test similar costæ, on and between which are strong growth lines (striæ), ultimately only striæ: the radial line is more rostrate and in the striate stage becomes much curved medianly: the inner margin is more flatly sloped and ultimately becomes indistinct: the umbilicus is more contracted at the same diameter (c. 100 mm.), but ultimately becomes proportionately larger.

Geological position: The horizon of the 1828 example is the so-called *ovatus* band; for Simpson describes the 1828 example (1884, p. 112). Possibly the 1822 form occurs with it; but, as this was uncertain, the designation *pseudovatum* was employed for this horizon (Y.T.A. 1910, xvi), intended as the name for the 1828 species. It was listed as *Pseudolioceras pseudovatum*, S. Buckman (Geol. Whitby, Ed. 2, Mem. Geol. Surv. 1915, p. 93) in default of a distinctive generic name.

Genus OVATICERAS, nov. (p. xi), the 1822 form the genotype.

*Result*

OVATICERAS OVATUM, YOUNG & BIRD sp., 1822, Whitbian [*pseudovatum* zone], near Whitby, and OVATICERAS PSEUDOVATUM, S. Buckman sp., 1910 (*Am. ovatus*, Young & Bird, 1828, non 1822), Whitbian, *pseudovatum* zone, near Whitby.



AMMONITES OVATUS, YOUNG & BIRD, 1822  
Whitby Museum, No. 197, Holotype  
Fig. 1, Side view; Fig. 2, Peripheral view



Fig. 2



Fig. 1



AMMONITES OVATUS, YOUNG & BIRD, 1828  
Whitby Museum, No. 198, Heautotype  
Fig. 1, Side view; Fig. 2, Peripheral view: both  $\times 0.63$





AMMONITES OVATUS, YOUNG & BIRD, 1828  
Whitby Museum, No. 198, Heautotype. Side view, part, Nat. size





*Comparable Species*

93    37    24    33

S. (106, 43, 24, 26)? {  
 S. 192, 35, 21, 35, { *Am. ovatus*; Young & Bird, 1828, XIII, 4.

F. 109, 40, 21, 27, {  
 T. 105, 37.5, 22, 27, { *Harpoceras ovatum*; Wright, 1882, LXIII, 4-6.



# YORKSHIRE TYPE AMMONITES

EDITED BY

S. S. BUCKMAN, F.G.S.

The original descriptions reprinted, and illustrated by figures of the types,  
reproduced from photographs mainly by

J. W. TUTCHER

## Part XVI

8 Plates, and Descriptions Nos. 112—116

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1918

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## PART XVI

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CHELTENHAM

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DESCRIPTIONS  
AND  
PLATES

II



112. SEMICOSTATUS,  
AMMONITES  
ARNIOCERAS

## 112. AMMONITES SEMICOSTATUS, YOUNG & BIRD (Plate CXII)

### *Original Description*

[YOUNG & BIRD, 1828, pp. 257, 359.]

"[P. 257.] No. 10, Pl. XII, is a neat little shell from the lias bands, having a low keel, with a slight furrow on each side. The inner whorls are entirely smooth; the outer whorl (and sometimes part of the next) is marked with sharp straight ribs, ending abruptly, so as to make a sharp knob at the back, with sometimes a slight bend forward. The aperture is round; the shell commonly less than half an inch broad. This shell we may call *A. semicostatus*. It often occurs in large clusters in the lias nodules.—This ammonite resembles *A. Smithi*, Sowerby, Tab. 406; which appears to occur in the same nodules.

"[P. 359] Plate XII . . . Fig. 10. *Ammonites semicostatus*. Lias bands."

### *Remarks*

Proportions, 39, 28, 24, 50; Subplaty-, subleptogyral, perlatumbilicate.

Stages, conch, serpenticone; periphery, 5; ornament 1, 2, 3, 4, 5.

The conch is truly serpenticone, being decidedly polygyral: there are at least 6 whorls. All the inner whorls, with their rather strong, though ill-defined, rounded inner margin, with their nearly circular section, slow increase, and striate markings, look much like a coiled worm. The feebly striate stage, looking like a smooth stage, unless viewed with a lens, persists nearly to the commencement of the last whorl; but, at distances of about each half-whorl, two or three obscure median bulgings may be detected. The striæ strengthen and pass into subcostæ about the beginning of the last whorl, and the latter soon become costæ, each of which quite quickly develops a small tubercle on the peripheral border. These costæ are at first laterally rursiradiate, but towards end of whorl have become versiradiate. Keel and furrows are distinct at beginning of last whorl—they thus precede the costate stage—and they strengthen with the whorl. Growth-lines sweeping forward pass over keel so distinctly as to make it appear faintly crenulate. The keel is of somewhat low relief. Aperture oblong.

The specimen now illustrated, entered as *A. semicostatus* in Whitby Museum register, is presumed to be the holotype from its agreement with the original description: the remark "the shell commonly less than half an inch broad" being taken as a general statement, not necessarily applicable to the type. Some other statements also indicate that more than one specimen was used in the description; but the main remarks fit this example very well. The figure gives no assistance, beyond the fact that it shows a species of this kind, drawn with its characteristic ribs reversed.

Genus, *Arnioceras*; Family, Arietidæ.

Geological position: Simpson (1884, p. 133) says "L. L. 25. R. H. Bay"; but enters it in 24 (p. xxii).

### *Result*

ARNIOCERAS SEMICOSTATUM, YOUNG & BIRD sp., 1828, Sinemurian, *semicostatum* zone, [Robin Hood's Bay], near Whitby.





Fig. 1

Fig. 2

Fig. 3

AMMONITES SEMICOSTATUS, YOUNG & BIRD, 1828  
Whitby Museum, No. 924, Holotype?—Pl. XII, f. 10  
Figs. 1, 2, Side & Peripheral views, N.S.; Fig 3, Suture-line  $\times 3$



*Comparable Species*

39    28    24    50

See No. **40.**



113. ROTIFER,

AMMONITES

PERISPINCTES

113. AMMONITES ROTIFER, WILLIAMSON-BROWN  
(Plate CXIII)

*First Mention*

[WILLIAMSON, Distr. Org. Rem. Yorksh. Coast ; Trans. Geol. S. (2) VI, 1841, 147.]

" KELLOWAYS ROCK

" This is best exposed at Gristhorpe, Cayton Bay and Scarborough Castle Cliff. At the latter place it presents the following ascending section :—

(a) Soft variable beds 35ft.

(b) Hard ironstone 6ft.

" The ironstone (b) is full of fossils . . . . the greatest bulk . . . . found towards the upper portion of the main mass of the stratum. The following . . . . most abundant :

" Ammonites ichthyodorsus (nob.)  
— gamma (nob.)  
— rotifer (nob.)  
— oblisus (nob.) "

*Original Description*

[T. BROWN, 1849, p. 246.]

" 21. AMMONITES ROTIFER.—The Wheel-like Ammonite, pl. xx\*. figs. 14, 15.

" Discoidal, with five moderately rounded, smooth volutions, which are one-third concealed ; a series of close-set ribs pass over the rounded back, and reach nearly the middle of the volutions on either side, where they are met by wide-set, thick ribs, which emanate from the inner margins ; aperture nearly orbicular.

" The Calcareous Grit, Scarborough.

" In the Manchester Museum."

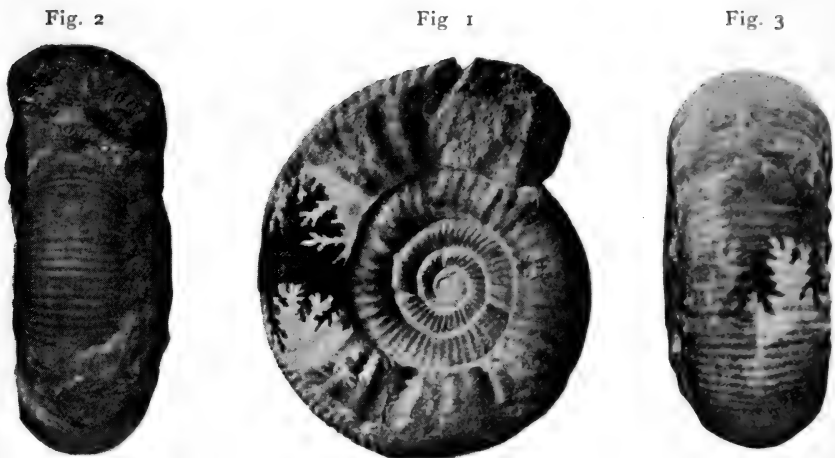
*Remarks*

Proportions, 53, 27, 40, 48 ; subplaty-, pachygyral ; perlatum-bilicate.

Stages, conch, serpenticone ; periphery, 1 ; ornament, 4c (— 4, tending to renewed anagenesis ?).

Whorls depressed, sides gibbous, greatest thickness about middle ; no definite inner edge ; ribs commence at line of contact, and are not hooked. Periodic constrictions, 2 to a whorl, strong. On flatly arched periphery the slightest sign of a median interruption of ribs (specimen without test). All ribs of low relief. Primaries slightly (shaped, breaking on edge of periphery into, first, on outer whorl, 2, later, 3 secondaries, with another rib generally intercalated—primaries becoming more pronounced with age. The secondaries have slightly sinuous course across periphery with, except towards end of whorl, slightest median bow backwards.

Suture-line, EL longer than L<sup>1</sup> ; auxiliary series just longer than EL ; L<sup>2</sup> rather small, L<sup>3</sup> more developed than L<sup>2</sup> and very oblique. Specimen wholly septate, without test on outer whorl.



AMMONITES ROTIFER, WILLIAMSON 1838, Chirotype  
Brown 1849, Holotype—Pl. xx\*, f. 14, 15; The Manchester Museum  
Fig. 1, Side view; Fig. 2, Apertural view; Fig. 3, Peripheral view





Genus, *Perisphinctes*, Waagen, family, *Perisphinctidæ*, Hyatt.

Geological position : not Calcareous Grit. Matrix bluish-grey, rather hard, somewhat arenaceous, with oolite grains in places. Seems nearest to grey sandstone of *athleta* zone mentioned Q.J.G.S., LIX, 1913, pp. 153, 154.

"Williamson preceded Capt. Brown as Curator of the Manchester Natural History Museum, and in 1837 a collection of Williamson's fossils was bought by the Society. He resigned in 1838 and Brown was appointed in same year" (Mr. J. Wilfrid Jackson, F.G.S., in litt. Aug. 3, 1917). Brown thus had Williamson's types in charge. He figured *rotifer* and *gamma*, but made no mention of Williamson. Mr. Jackson drew my attention to Williamson's paper, which was read May 9, 1838.

### Result

PERISPINCTES ROTIFER, WILLIAMSON-BROWN sp. 1849, Callovian, [*athleta* zone ?] Scarborough, Yorkshire.

### Comparable Species

				53	27	40	48	
F.	89,	27.5,	31,	50,	{	<i>Perisphinctes</i>	<i>Recuperoi</i> , Gemmellaro, 1872,	v, 9-11.
T.	89,	25,	30,	55,				
F.	157,	28,	26,	53,	{	<i>Perisph.</i>	<i>Recuperoi</i> ; Waagen, 1875, XLIII, 1.	
T.	152,	30,	29,	53,				
F.	41,	30,	41,	47,	{	Id.	XLIII, 2.	
T.	40,	33,	42,	72[48],				
F.	32.5,	30,	36,	48,—	<i>Am. convolutus dilatatus</i> , Quenstedt, 1887,			
					LXXXI, 1.			
F.	19,	28,	42,	48,—	Id., LXXXI, 4.			
F.	41,	28,	46,	50,—	Id., LXXXI, 22.			

*Perisph. Recuperoi*; Siemiradzki, 1899, p. 295.

Dr. Siemiradzki writes "Quand à *P. rotifer*, dont vous avez eu l'aimabilité de me communiquer la photographie, il me paraît être identique à *P. Recuperoi*, Gemm.—ses lobes et la sculpture sont identiques, tout au plus s'il y a une petite différence dans les dimensions—qui d'ailleurs sont assez variables chez *P. Recuperoi*."—In litt. Mar. 12, 1912.

The list of Comparable Species is given in accordance with this kind information; but it may be remarked that Gemmellaro's figures show a larger specimen with secondary ribs much coarser and fewer, and a reduction in whorl thickness greater than Brown's species might be expected to develop. The horizon of the Sicilian species is *Macrocephalus* zone.



114. BIFRONS,

AMMONITES

HILDOCERAS

## 114. AMMONITES BIFRONS, BRUGUIERE

(Plates CXIV A, B)

*First Mention*

[LISTER, MARTIN, Hist. Animal. Angl., 1678, Tract III, [Div. 2],  
Titulus II, p. 205, tab. 6, f. 2.]

"*Ammonis Cornu, spinâ in ambitu eminente, striis lateralibus paulo ultra mediam tantum partem Orbis extimi pertingentibus.* Hic lapis quatuor digitos in diametro implet; at paululum uno digitato crassior est.

"In extimo ambitu velut spinam, hoc est, unam striam acutam eminentemq; inter duos profundiores sulcos mediam habet: hujus autem spinæ unitas nusquam interruptitur.

"Striæ verò lateralis curvæ procedunt; at orbis non multo ampliùs quàm tres partes occupant; in quo magnum hujus speciei discrimen.

"Neq; in hoc lapide ampliùs quatuor orbes numerare potui. Huic lapidi color ferè lividus, certè si ex rupibus aluminosis exempti sint: alios autem ex his & sulcos & ferrugineos vidimus.

"Maximè in fractis articulos quosdam observare licet; at in nonnullis iidem ipsi etiam extrinsecus apparent sc. quodam opere foliaceo singulos articulos distinguente. Intùs ferè materiâ quâdam crystallinâ suffarcinantur. Cæterum pars crustacea interdum ex ferri glebâ constat.

"Horum a. lapidum magnam copiam vidi in rupe aluminosa juxta *Whitby agri Eboracensis.*" [V.E.R.]

*Original Description*

[BRUGUIERE, Encyclop. Méthod. Vers I, 1789, p. 40.]

"15. AMMONITE à double face.

"*Ammonites bifrons.*

"*Ammonites anfractibus compressis externe costatis, interne levibus dorso bisulcato, carina obtusa inter media;* NOB.

*Ammonis cornu, spina in ambitu eminente, striis lateralibus, paulo ultra mediam tantum partem orbis extimi pertingentibus;* LIST. conch. angl, pag. 205, tab. 6, num. 2, fig. bona." [V.E.R.]

*Remarks*

The specimen depicted Pl. CXIV A, fig. 2 is most remarkable for its agreement with Lister's illustration and description. It agrees in ribbing, extent of umbilicus, amount of exposure between furrow and contact-line, extent of matrix in centre and almost exactly in fracture of aperture—even to projecting point and break down middle of rib. Suture-lines are indicated in Lister's fig. where this specimen has body-chamber; but, on other side, is a suture-line which may have been transposed a little too far on (ES broad, L<sup>1</sup> wide-stemmed, denticulate, incipiently trilobulate, S<sup>1</sup> narrow, L<sup>2</sup> small).

With description—Lister's measures 2.9 in. (74 mm.), a digitus = 0.725 in.; present specimen is 76 mm. Lister's, "a little thicker than a finger"; this, 0.8 in. Lister's proportions, T. & F. 74(61), 32, [27], 45; this, S. 76, 32, 27, 45. Lister's remarks about partitions, broken parts and crystalline matter (a) are all borne out by other side of specimen, where, too, is what looks like "pars crustacea" (b).

Fig. 1



Fig. 2d

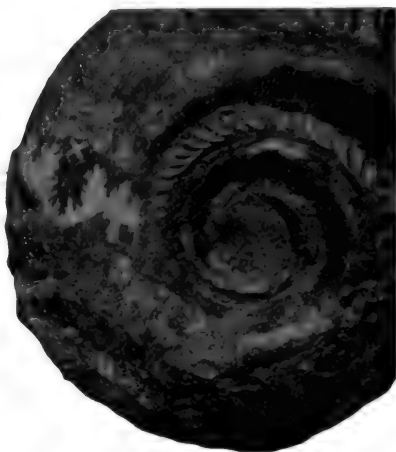


Fig. 2b



Fig. 2a



Fig. 2c

AMMONITES BIFRONS, BRUGUIERE, 1789  
 Fig. 1, Copy of Protograph, Lister, 1678, Pl. vi, f. 2 ; Figs. 2a-d, Topotype  
 (Holotype ?), Coll. V. E. Robson, F.G.S.

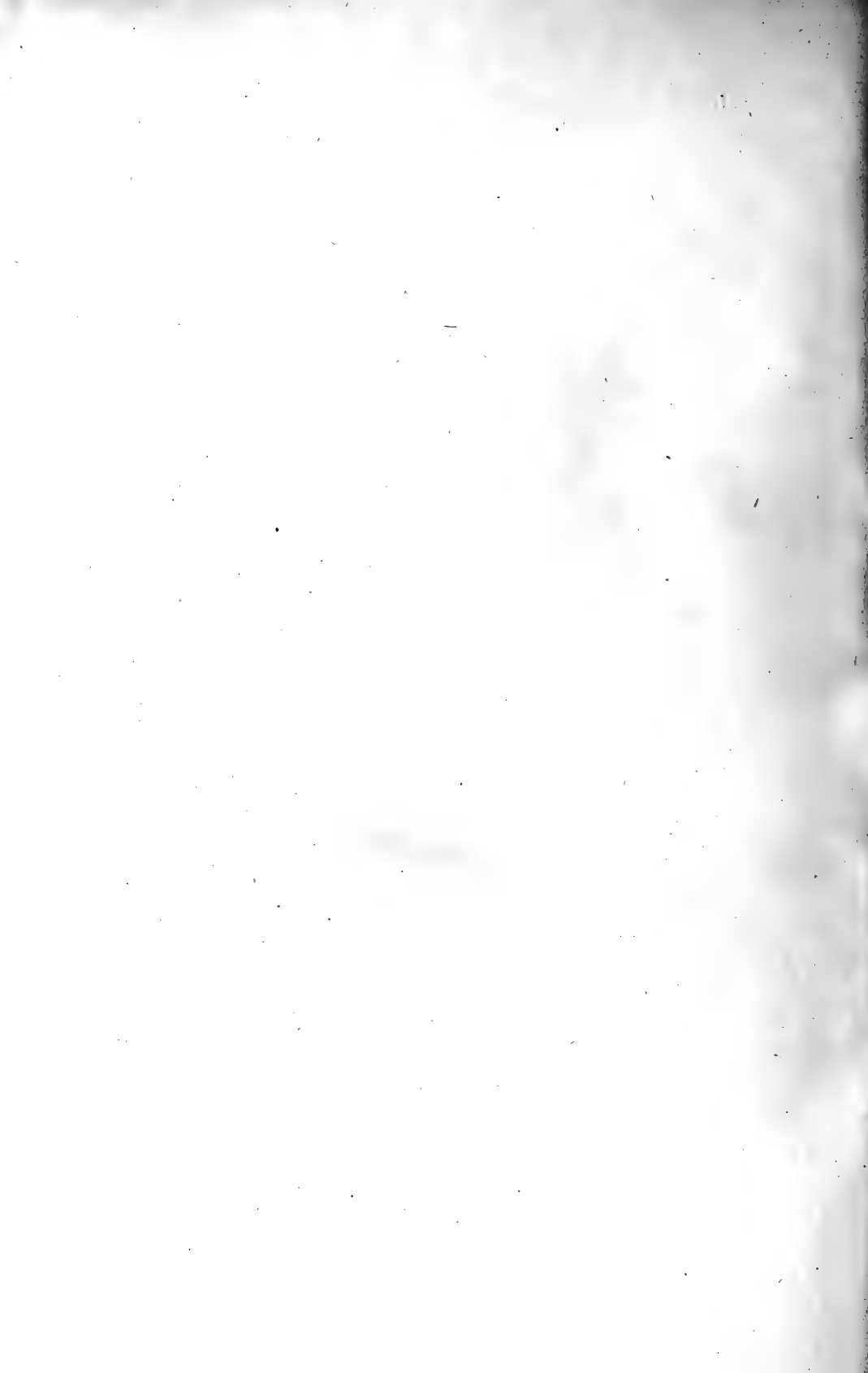


Fig. 2



Fig. 1



A CRIPPLE AMMONITE  
Whitby Museum, No. 287  
Fig. 1, Side view ; Fig. 2, Apertural view





The agreement is remarkable enough to suggest that this is Lister's example and so is Holotype: at any rate it is a Topotype and worthy to be Neotype. Mr. V. E. Robson, F.G.S., purchased it in London.

Genus, *Hildoceras*; family Hildoceratidae.

Geological position, Alum Shale, Whitby.

### Result

HILDOCERAS BIFRONS, BRUGUIERE sp., 1789, Whitbian [*subcarinatum* (*bifrons*) zone], Whitby.

### Note

In Pl. CXIV B is depicted a cripple-form—keel and furrows are lost, periphery is rounded and crossed by fairly strong ribs: Hyatt's planicostan abdomen. This example is slightly less umbilicate and thinner than *H. bifrons*: the differences may be due to the injury which caused the disturbance of venter; but there is nothing to show where the injury took place. Return to a very early form of venter is to be noted as result of injury—local accelerated cyclical development.

### Comparable Species

- |    | 74           | 32  | [27]   | 45  |   |
|----|--------------|-----|--------|---|---|
| F. | 70,          | 36, | [27?], | 43,—  | <i>Am. Walcotii</i> , J. Sowerby, Oct. 1815, CVI, [I].      |
| F. | 68,          | 39, | [25?], | 35,—  | <i>Am. Hildensis</i> , Young & Bird, 1822, XII, 1.          |
| T. | 200,         | 25, | 19,    | 49,   | } <i>Am. bifrons</i> ; d'Orbigny, 1844, LVI,                |
| F. | 200(95),     | 27, | 19,    | 52,   |   |
| T. | 155(F. 160), | 26, | 19,    | 52,—  | <i>Harpoceras bifrons</i> ; Wright, 1882, LIX,              |
|    |              |     |        | I, 2.   |   |
| F. | 46,          | 39, | 23,    | 32,   | } <i>Hildoceras bifrons</i> var., S. Buckman, 1889,         |
|    |              |     |        |   |   |
|    |              |     |        | XXII, 30, 31, type of                           |   |
|    |              |     |        | <i>H. semipolitum</i> , S. Buckman, 1902, p. 4. |   |
| F. | 56,          | 39, | —,     | 31,   | } <i>Hild. bifrons</i> var. <i>sulcosa</i> , Bellini, 1900, |
|    |              |     |        |   |   |
|    |              |     |        |   | p. 146, f. 11.  |
| F. | 57,          | 34, | —,     | 44,—  | <i>Hild. bifrons</i> v. <i>laticosta</i> , Id., f. 12.      |
| F. | 33,          | 37, | —,     | 37,—  | <i>Hild. bifrons</i> v. <i>serraticosta</i> , Id., f. 13.   |

And see No. 12; also Meneghini, 1867, Dumortier, 1874.



115. RUGOSUS,

AMMONITES

PACHYCERAS

## 115. AMMONITES RUGOSUS, LECKENBY

(Plate CXV)

*Original Description*

[LECKENBY, 1859, pp. 7, 9]

"[P. 7.] Fossils of the Kelloway Rock of Yorkshire . . . .  
*Ammonites rugosus*, *Leckenby*.

"[P. 9] 3. AMMONITES RUGOSUS, LECKENBY.

"Gibbous, deeply umbilicated, ribs very thick and strong, separated by wider spaces. Aperture rounded, indented one-fourth by the succeeding whorl.

"*Locality*. Near Gristhorpe Bay."

*Remarks*

Proportions, 66, 45, 66, 22, Perplaty-, subextremipachygyral; subangustumbilicate.

Stages, conch, sphærocone; periphery, 1; ornament, 4(c).

The umbilicus is deep, narrow, gradate; the umbilical wall is high, almost perpendicular, smooth with definite edge. Ribs commence on this edge, where they are sometimes connate: they increase in strength as they progress to middle of periphery. The periphery is not defined, and may be said to extend as an arch from one umbilical edge to the other; the greatest thickness being just on umbilical edge. Suture-lines obscurely shown. The principal feature is the very wide ES (foreshortened in photograph), so that  $L^1$  is situated at about  $\frac{1}{4}$  of distance from inner margin, while  $L^2$  is nearly on margin.

Genus, *Pachyceras*, Bayle 1878, close ally of *Erymnoceras*, Hyatt (*A. coronatus*); family Pachyceratidae, nov. p. xiii.

Geological position: from a hard grey, somewhat sparingly oolitic, calcareous matrix. R. Douvillé (1912, p. 10) says *Pachyceras* characterises the beds H. 1-3 of Villers-sur-Mer, Normandy, with *Peltoceras athletoides* and first appearance of *Quenstedticeras*. S. Buckman (Q.J.G.S. 1913, LXIX, 153) placed this species, from its matrix, somewhat higher—with *vertumnus*. Possibly it marks a separate zone—post-*renggeri*-pre-*vertumnus*.

*Result*

PACHYCERAS RUGOSUM, LECKENBY sp., Divesian [pre-*vertumnus* (*Pachyceras*) zone], near Gristhorpe Bay, near Scarborough, Yorkshire.

Fig. 2



Fig. 1



AMMONITES RUGOSUS, LECKENBY, 1859  
Sedgwick Museum, Cambridge (Leckenby Coll.), Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view



*Comparable Species*

T. 280,	50,	47,	25, {	<i>Am. lalandeanus</i> , d'Orbigny, 1848, CLXXV,
F. 88,	48,	43,	20, {	I, 2.
F. 26,	49,	67,	19,—Id.,	f. 4, 5.
F. 119,	43,	—,	23,—	<i>Pachyceras lalandei</i> , Bayle, 1878, XLIII, 1.
F. 51,	51,	—,	15,—Id.,	f. 2.
F. 30,	41,	100,	24,—	<i>Stephanoceras sublævis</i> ; Deslongchamps, 1889, I, 2.
F. 57,	44,	76,	24,—Id.,	f. 3.
F. 84,	46,	—,	23,—Id.,	f. 4—Holotype of <i>P. robustum</i> , S. Buckman, 1913, p. 163.
F. 82,	38,	46,	30,—	<i>Pach. crassum</i> , R. Douvillé, 1912, VII(1), 2.
F. 75,	49,	57,	21,—Id.	VIII(11), 4.
F. 31,	49,	73,	20,—	<i>P. villersensis</i> , Id., VII(1), 6.
T. F. 92(77),	44,	54,	26,—	<i>P. jarryi</i> , Id., VII(1), 10.
F. 128,	47,	45,	21,—	<i>P. lalandei</i> ; Id., VIII(11), 1.





116. VERTUMNUS,

AMMONITES

VERTUMNICERAS

## 116. AMMONITES VERTUMNUS, BEAN-LECKENBY

(Plates CXVI A, B, C)

*Original Description*

[LECKENBY, 1859, pp. 7, 9, 15.]

"[P. 7.] Fossils of the Kelloway Rock of Yorkshire . . . .  
Ammonites Vertumnus, *Bean, MS.*

"[P. 9] 6. AMMONITES VERTUMNUS, Leckenby (Bean MS) Pl. I. figs. 3a, 3b.

"This Ammonite appears to approach most closely to *Am. Mariæ*, D'Orb.; the ribs are strong and cord-like, forming coarse folds on the back.

"*Locality.* Near Gristhorpe Bay.

"[P. 15] Plate I. Fig. 3a. *Am. Vertumnus*, *Leckenby (Bean, MS.)*; nat. size. 3b. Outline of front view."

*Remarks*

There are five specimens in the Sedgwick Museum, Cambridge, (Leckenby Coll.), under the name *Am. vertumnus*—the Holotype and 4 Paratypes. Of these, two are separable as another species already named, and one is parted as requiring a name.

Proportions :—

I. 32, 33, 40, 37, Holotype, Pl. CXVIA.

II. 40, 33, 40, 38, Paratype.

Subplaty-, pachygyral; latumbilicate.

Conch, serpenticonic; periphery, 2; ornament, 4, strong.

Genus, *Vertumniceras*, nov., p. xiv, Genotype, Pl. CXVIA; family, Cadoceratidæ, Hyatt, 1900.

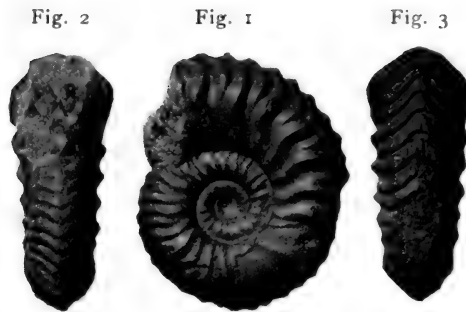
Geological position: from Leckenby's Kelloway Rock, from a grey calcareous bed with a few fairly large oolitic grains—*Vertumnus* zone (S. Buckman, 1913, 153).

*Result*

VERTUMNICERAS VERTUMNUS, BEAN-LECKENBY sp. 1859, Divesian, *vertumnus* zone, near Gristhorpe Bay, near Scarborough, Yorkshire.

*Note.*

Two Paratypes (*Quenst. Damoni*, Nikitin, Mém. Soc. Belge Géol., 1889, III, Mém. p. 35, Damon's cited fig. should be lectotype, from name) same matrix as above: Proportions, 41, 41, 41, 32, of the example in Plate CXVIB. A third Paratype with wide-spaced ribs *Vertumniceras SPATIATUM* nov. Pl. CXVIC): Proportions, 50, 35, 38, 40: matrix more marly and bluish, otherwise similar.



AMMONITES VERTUMNUS, BEAN-LECKENBY, 1859  
Sedgwick Museum, Cambridge (Leckenby Coll.), Holotype—Pl. I, f. 3  
Fig. 1, Side view ; Fig. 2, Apertural view ; Fig. 3, Peripheral view



Fig. 2



Fig. 1



AMMONITES VERTUMNUS, BEAN-LECKENBY, 1859  
Sedgwick Museum, Cambridge (Leckenby Coll.), Paratype  
Fig. 1, Side view ; Fig. 2, Peripheral view





AMMONITES VERTUMNUS, BEAN-LECKENBY, 1859  
Sedgwick Museum, Cambridge (Leckenby Coll.), Paratype

VERTUMNICERAS SPATIATUM, nov., Holotype





## Comparable Species

			32	33	40	37		
F. 65,	43,	46,	28,	}	<i>Am. Mariæ</i> , d'Orbigny, 1848, CLXXIX, 5, 6,— Lectotype, S. Buckman, 1913, p. 165.			
T. 60,	41,	35,	25,					
S. 41,	41,	41,	32,—	<i>Am. Vertumnus</i> , Bean-Leckenby, 1859, p. 9, Paratype = <i>V. damoni</i> , Nikitin sp. (Y.T.A., Pl. CXVI B).				
S. 50,	35,	38,	40,—	Id. Paratype = <i>V. spatiatum</i> , nov. (Y.T.A., Pl. CXVI c).				
F. 47,	41,	38(44),	32,—	<i>Am. vertumnus</i> ; Damon, 1880, 1, 3, = <i>Quenst.</i> <i>damoni</i> , Nikitin sp., 1889, p. 35, Syntype cit.—Lectotype.				
F. 39,	43,	33,	32,	}			<i>Cardioceras Mariæ</i> ; Lahusen, 1883, IV, 7.	
T. 39,	40,	34,	28,					
F. 38,	38,	—,	31,	}	<i>Cardioc. vertumnum</i> ; Id. IV, 9 = <i>Q. damoni</i> , Nikitin, Syntype cit.			
T. 38,	40,	44,	40,					
F. 32.5,	39,	40,	32,—	<i>Quenstedticeras carinatum</i> ; Sintzow, 1888, 1, 4, = <i>Q. damoni</i> , Nik., Syntype cit.				
F. 58,	37,	32,	38,—	<i>Quenstedtic. Mariæ</i> ; Weissermel, 1895, x, 1; and see figs. 2, 3.				
F. 40,	34,	—,	34,—	<i>Quenstedtic. Mariæ</i> ; R. Douvillé, 1912, XI(v), 2.				
F. 28,	36,	49,	38,—	Id., fig. 10; and see figs. 2, 12.				



# YORKSHIRE TYPE AMMONITES

EDITED BY

S. S. BUCKMAN, F.G.S.

The original descriptions reprinted, and illustrated by figures of the types,  
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J. W. TUTCHER

## Part XVII

Pages *xiii*, *xiv*; 8 Plates, and Descriptions Nos. 117—119

LONDON:  
WILLIAM WESLEY AND SON,  
28 ESSEX STREET, STRAND  
1918

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117. GREGARIUS,

AMMONITES

PRORSICERAS

## 117. AMMONITES GREGARIUS, BEAN-LECKENBY.

(Plates CXVII A, B)

*Original Description*

[LECKENBY, 1859, pp. 7, 11]

"[P. 7.] Fossils of the Kelloway Rock of Yorkshire . . . .  
*Ammonites gregarius?* Bean, MS.

"[P. 11] 22. AMMONITES GREGARIUS (?), Bean, MS.

"Except in its greater comparative thickness, which renders the umbilicus deeper, and the somewhat more robust character of the ribs, I cannot distinguish this from *Am. flexicostatus*.

"*Locality.* South side of the Castle Rock, Scarborough.

*Remarks*

Proportions :—

I,	{	51,	32,	25,	38.
		79,	33,	32,	40.
II,		81,	36,	29,	35.

Stages, conch, serpenticone; periphery, 1c; ornament, 4.

There are two examples in the Sedgwick Museum, Cambridge, regarded as the types of this species. One (No. II above) bears a label in Bean's handwriting "*Am. gregarius mihi Scarboro*"; but this gives no reason to conclude that it was definitely selected as the holotype, for such was not the practice on those days: it is a somewhat malformed specimen, due to injury perhaps. The two examples are now taken as Syntypes and No. I is chosen as Lectotype. There is about 1 in. body-chamber to this example; none to the other.

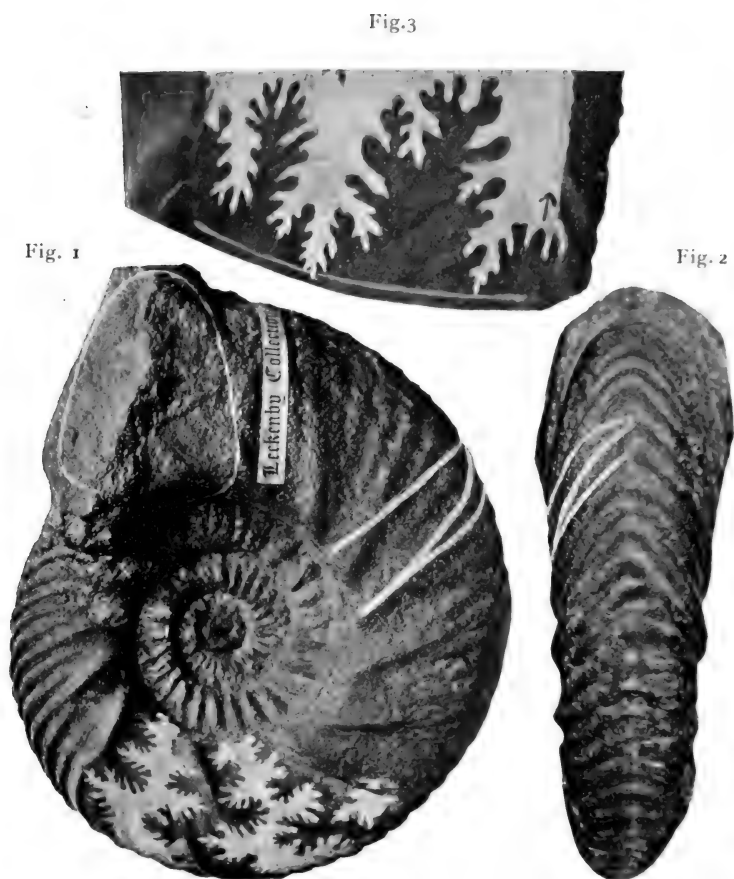
Whorls in young stage much compressed: after about 60 mm. diam. swollen stage begins, affecting mainly inner area, inner margin becoming prominent and steep—the whorl convergent, in section subtriangular. Ribs markedly prorsiradiate; expanding  $\cap$ -pattern (about a right angle) on a narrowish rounded venter— $\cap$ -apex slightly swollen in many cases. On outer whorl primaries spaced, more or less distinctly bifurcate; one, two, sometimes three unattached and unconnected secondaries in the intervals. Suture-line with somewhat short, broad-stemmed lobes, L2 fairly developed, produced to line of lobules of L1: in enlarged photographs (CXVII A, 3; B, 2) width of L2 diminished owing to foreshortening.

Genus, PRORSICERAS, nov. (p. xiv); family Cadoceratidæ, Hyatt, 1900.

Geological position: from a bed of Leckenby's Kelloway Rock, matrix bluish, calcareous, having many close-packed fairly large oolite grains (S. Buckman, 1913, 153).

*Result*

PRORSICERAS GREGARIUM, BEAN-LECKENBY sp. 1859, Divesian, *gregarium* zone, Castle Rock, Scarborough, Yorkshire.



AMMONITES GREGARIUS, BEAN-LECKENBY, 1859  
 Sedgwick Museum, Cambridge (Leckenby Coll.), Lectotype ; Genoholotype  
 Fig. 1, Side view ; Fig. 2, Peripheral view ; Fig. 3, Suture-line  $\times 3$





Fig. 2

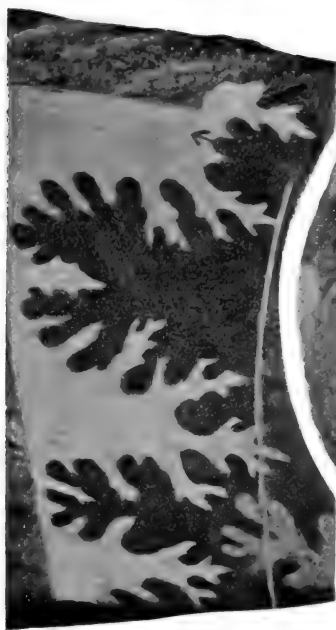


Fig. 1



AMMONITES GREGARIUS, BEAN-LECKENBY, 1859  
Sedgwick Museum, Cambridge (Leckenby Coll.), Syntype  
Fig. 1, Side view ; Fig. 2, Suture-line  $\times 3$



*Comparable Species*

			79	33	32	40
F. 52,	43,	[28?],	28,—	<i>Am. flexicostatus</i> , Phillips, 1829, VI, 20.		
F. 64,	35,	31,	33,	} <i>Amaltheus Leachi</i> ; Nikitin, 1881, I, 5.		
T. 64,	28,	31,	36,			
F. 43,	26,	24,	38,—	<i>Am. Lamberti</i> ; Quenstedt, 1887, XC, 8.		



118. DISSIMILIS,

AMMONITES

EBORACICERAS

## 118. AMMONITES DISSIMILIS, BROWN.

(Plates CXVIII A, B)

*Original Description*

[T. BROWN, 1849, pp. 246, 259.]

" 19. AMMONITES DISSIMILIS.—The Dissimilar Ammonite, pl. xx\*, figs. 11, 12, 13.

" Inflated with rapidly increasing volutions, the smaller ones entirely concealed; largely umbilicate; crossed by broad furrows, and flattened curved ribs passing over the thick back, with a few elongated nodules on the inner edges of the volutions; aperture wide and sub-orbicular.

" The Calcareous Grit, Scarborough.

" In the Manchester Museum.

" [P. 259] Plate xx\*. . . 11, Ammonites dissimilis, var. p. 246, 12, 13. Ammonites dissimilis, p. 246."

*Remarks*

Two specimens were figured by Brown who appears to have employed a MS. name originally given by Williamson, see Note below and remarks on *Am. rotifer*, No. 113. Two specimens are in the Manchester Museum: one (Pl. CXVIII A) may be accepted as original of Brown's Pl. xx\* f. 12 (13?) and would thus be his Holotype, the other (Pl. CXVIII B) is by its label Williamson's Chirotype (though both may have been so), and just possibly original of Brown's *Am. dissimilis* var., Pl. xx\* f. 11: it has the long primaries and curving secondaries of Brown's fig., an umbilicus with similar amount of matrix and a rough piece of matrix at end of whorl. It can however only be considered original of Brown's fig. if his delineation was an enlarged one.

Proportions:  $\left\{ \begin{array}{ccc} 57 & 48 & 52 \\ 76 & 50 & (58?) \end{array} \right\} \begin{array}{c} 23 \\ 23 \end{array} \left. \vphantom{\begin{array}{ccc} 57 & 48 & 52 \\ 76 & 50 & (58?) \end{array}} \right\} \text{Holotype.}$

Perplaty-, subextremipachygyral; subangustumbilicate.

Globescent, galeatiform,  $\frac{3}{4}$  occluded; periphery subangulate at beginning of last whorl, losing this and becoming rounded at end. Inner margin slightly rounded at beginning of last whorl; strong, very steep, subplanate at end. Ribs with somewhat short (about  $\frac{1}{3}$  of side), somewhat tumid primaries, bifurcating into slightly curved secondaries (with occasional intercalation—failure of primary) crossing periphery at angle which widens out as globosity increases: all rib-characters becoming obsolete, end of whorl probably quite smooth: another whole whorl is indicated by remains of contact-line of inner margin. Suture-line, L1 longi-, angustilobate; L2 quite short, rather broad.

Genus, *Eboraciceras*, nov. (p. xiv); family, Cadoceratidæ, Hyatt, 1900. This species appears to be the same as *Am. sutherlandiæ*, d'Orbigny, CLXXVI, but *Am. sutherlandiæ*, Murch-Sow., is a more advanced (more gerontic) form, beginning to expand umbilicus and decrease thickness, see p. 118c.

Geological position: Matrix bluish, marly, calcareous with oolitic grains somewhat close in places—*Vertumnus* zone, Q.J.G.S. LXIX, 1913, p. 153.

*Result*

EBORACICERAS DISSIMILE, BROWN sp. 1849, [Divesian, *vertumnus* zone], Scarborough, Yorkshire.

Fig. 1



Fig. 2



Fig. 3



AMMONITES DISSIMILIS, WILLIAMSON, Chirotype ?  
Brown 1849, Holotype—Pl. xx\*, f. 12(13 ?) ; The Manchester Museum  
Fig. 1, Side view ; Fig. 2, Apertural view ; Fig. 3, Peripheral view

EBORACICERAS DISSIMILE, BROWN SP.





Fig. 4

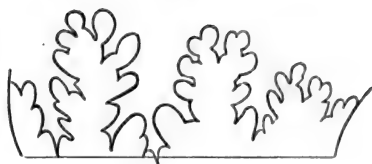


Fig. 2



Fig. 1



Fig. 3



AMMONITES DISSIMILIS, WILLIAMSON, Chirotype  
(Brown 1849, Paratype—Pl. xx\*, f. 11 ?) ; The Manchester Museum  
Figs. 1, 2, 3, Nat. size ; Fig. 4, Suture-line  $\times 3$



## Note

Williamson's Chirotype above referred to was presented to the Museum by the Exors. of A. Milnes Marshall, Prof. of Zoology 1879-1893 in succession to Williamson. It is presumably a specimen of the original Williamson coll. (see *Am. rotifer*, No. 113) temporarily in the hands of Prof. Marshall for teaching purposes:—Information of Mr. J. Wilfrid Jackson, F.G.S. It has a label "*Ammonites dissimilis*, Williamson MSS. *Kelloway Rock*, *Scarboro'*." Proportions, 37, 40, 68, 26. Slightly prorsiradiate primaries about half-length of side regularly bifurcate into feebly curving secondaries, with feeble ventral angularity, lost at end of whorl. Suture-line, L1 not so longilobate as holotype, L2 longer. Matrix, grey, hard, calcareous with a few fairly large oolite grains.—QUENSTEDT-CERAS WILLIAMSONI, nov., [Divesian, *vertumnus* zone], Scarborough, Yorkshire—Pl. CXVIII B.

## Comparable Species

		Holotype, 76      50      (58 ?)      23			
T.F.	177(118), 39,	[48],	25,—	<i>Am. Sutherlandiae</i> , (Murch.) J. de C. Sowerby, June 1817, DLXIII, 2.	
T.	180,	48,	60,	22,	} <i>Am. Sutherlandiae</i> ; d'Orbigny 1848, CLXXVI.
F.	{ 180(92),	48,	53,	19,	
	{ 92(46),	48,	64,	20,	
F.	41,	43,	62,	30,	} <i>Cardioceras cf. Mologae</i> ; Lahusen 1883, IV, 17.
T.	40,	29[39],	60,	33,	
F.	50,	47,	46,	22,—	<i>Am. Lamberti pinguis</i> , Quenstedt 1887, XC, 15.
F.	43,	42,	54,	27,—	<i>Quenstedticeras Sutherlandiae</i> ; Weissermel 1895, XI, 1.

		Paratype, 37      40      68      26			
F.	48,	43,	70,	28,—	<i>Am. Sutherlandiae</i> ; d'Orbigny, 1848, CLXXVII, 3, 4.
F.	28,	49,	53,	22,	} <i>Cardioceras Goliathum</i> ; Lahusen, 1883, IV, 18.
T.	26,	46,	58,	28,	
F.	33,	40,	64,	30,—	<i>Cadoceras carinatum</i> ; Weissermel, 1895, XII, 2.
F.	48,	47,	76,	22,—	<i>Quenstedticeras Sutherlandiae</i> ; R. Douvillé, 1912, XI(v), 9.



119. CRASSUS,

AMMONITES

CELOCERAS

119. AMMONITES CRASSUS, YOUNG & BIRD  
(Plate CXIX)

*Original Description*

[YOUNG & BIRD, 1828, p. 253.]

"In the hard bands in the alum shale, especially the ironstone bands, we find a shell ribbed like *A. communis*, but much thicker in proportion to its breadth; the whirls being flattened transversely, and the aperture of course being transversely oblong. The inner whirls diminish rapidly in thickness, so as to form an umbilicus, or cup, more or less deep. The ribs sometimes split into three on the back: the undivided part is usually very short. This species, we have named *A. crassus*. There are two or three varieties in the form, all essentially different from *A. communis*.

*Remarks*

Proportions,  $\left\{ \begin{array}{llll} 56, & 27, & 45, & 46 \\ 72, & 27, & 38 & 46 \end{array} \right\}$

Subplaty-, perpachy- to pachygyral; perlatumbilicate.

Stages, conch, serpenticone; periphery, 1; ornament, 5\*.

The species is craterumbilicate up to about 42 mm. diameter, then tends towards planumbilicate. The costæ are strong, hollow (septicostæ), regular, mostly bifurcate at edge of periphery, rarely trifurcate, more rarely a rib intercalated.

Genus, *Celoceras*, Hyatt; family, Dactyloidæ, Hyatt.

Geological position: Simpson (1884, p. 86), says "I am not aware that it is ever found along with *A. communis*, but lower in the series. . . . U.L. 1."

*Result*

CÆLOCERAS CRASSUM, Young & Bird sp. 1828, Whitbian, [*sub-carinatum* (*bifrons*) zone], Whitby.

Fig. 1

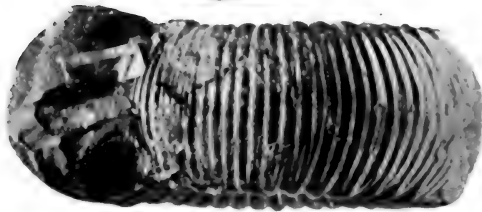


Fig. 2

AMMONITES CRASSUS, YOUNG & BIRD, 1828  
Whitby Museum, No. 125, Holotype  
Fig. 1, Side view ; Fig. 2, Apertural view





*Comparable Species*

(Selected and measured by Mr. V. E. Robson, F.G.S.)

F.	42,	32,	52,	38,— <i>Am. crassus</i> ; Dumortier, 1874, xxvii, 8, 9.
F.	44,	32,	—,	39,— <i>Stephanoceras crassum</i> ; Blake, 1876, viii, 5.
F.	36,	28,	43,	48,— <i>Am. subarmatus</i> ; Reynès, 1879, Lias Sup., iii, 11, 12.
F.	81,	26,	29,	54, ( <i>Stephanoceras crassum</i> ; Wright, lxxxvi, 8-10.
T.	75,	26,	29,	56, (
F.	51,	32,	—,	47,— <i>Am. crassus</i> ; Quenstedt, 1884, xlvi, 21.
F.	45,	28,	—,	50,—Id. xlvi, 23, below change.

See also Nos. 59, 69, 89.



# YORKSHIRE TYPE AMMONITES

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## Part XVIII

Title page ; pp. *xv*, *xvi* ; 8 Plates ; Descriptions Nos. 120, 121 ;  
Appendix, pp. A-H, with Index

LONDON :  
WILLIAM WESLEY AND SON,  
28 ESSEX STREET, STRAND  
1919

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120. IMPENDENS,  
AMMONITES  
ARIETITES

120. AMMONITES IMPENDENS, YOUNG & BIRD  
(Plate CXX)

*Original Description*

[YOUNG & BIRD, 1828, p. 266.]

"We have also, from the lias bands, a smaller ammonite [than *A. exaratus*] with the inner edge of the whirl overhanging, as in *A. Mulgravius*; but its ribs are fewer and more prominent, and instead of being hook-shaped, are nearly straight. This species may be designated *A. impendens*."

*Remarks*

Proportions, 72, 41, 22, 27; platy-, subleptogyral, sublatumbilicate.

Stages, conch, platycone; periphery, 4c; ornament, 4c.

The carina is not septate.

Genus, *Arietites*, Waagen; fam. Arietidae.

Geological position: Blake (1876, p. 290), "Zone of *A. oxynotus*"; Simpson (1884, pp. XXII, 126), "L.L. 16"; Buckman (Geol. Whitby, 1915, p. 67), §I, 4, "*stellare* zone" with "*Ar. denotatum*?"

*Result*

ARIETITES IMPENDENS YOUNG & BIRD sp. 1828, Sinemurian, [*stellare* (*denotatus*) zone], Yorkshire [Coast].

Fig. 1

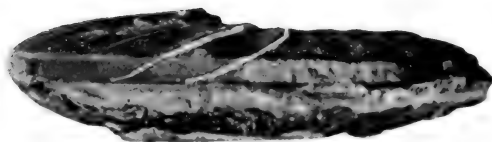


Fig. 2

AMMONITES IMPENDENS, YOUNG & BIRD, 1828  
Whitby Museum, No. 292, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view

ARIETITES IMPENDENS, YOUNG & BIRD SP.





*Comparable Species*

72    41    22    27

- F. 148,    40,    —,    35,—*Am. Brooki*, J. Sowerby, 1818, cxc.  
 F. 66(44), 42,    —,    27,—*Arietites impendens*; Blake, 1876, vi, 7.  
 F. 142,    37,    [26]? 34,—*Ar. Brooki*; Wright, 1878, vi, 4.  
 F. 86,    41,    24,    27,—*Ar. impendens*; Wright, 1881, xxii A, 1-3.  
 F. 41,    38,    —,    30,—*Id.*, xxii A, 4.  
 F. 46,    41,    24,    30,—*Asteroceras impendens*; Hyatt, 1889, x, 8, 9.

And see Nos **35, 54, 67.**



121. LONGÆVUS,

AMMONITES

LONGÆVICERAS

121. AMMONITES LONGÆVUS, BEAN, CIT. LECKENBY  
(Plates CXXI A, B)

*Original Description*

[J. LECKENBY, 1859, pp. 7, 11]

" [P. 7] Fossils of the Kelloway Rock of Yorkshire . . . . Am. Lamberti, Sowerby.

" [P. 11] 19. AMMONITES LAMBERTI, Sowerby.

*Ammonites longævus*, Bean, MS.

This Ammonite approaches *Am. flexicostatus*, but in *flexicostatus* there are two or three smaller ribs between each principal one; whereas, in *Am. Lamberti*, they simply bifurcate, and are much less incurved than in the former species.

" *Locality*. The Castle Rock, Scarborough.

*Remarks*

Four specimens in the Sedgwick Mus., Cambridge, (Leckenby coll.) bear on back of tablet an original label (Leckenby's writing?) "*Am. longævus* (Bean), Scarboro', Kel. Rock." The largest example also bears a label "*Am. longævus* Bean MSS." and this may be taken as lectotype. The others are distinct: see below.

Proportions, 51, 47, 33, 15; perplaty-, subpachygyral; angust-umbilicate.

Stages, conch, platycone; periphery, 1c, passing from 2 (2c?); ornament, 4.

Ribs strongly prorsi-arcuate—in form of a bow falling forwards—regular, bifurcate; place of bifurcation varies; rarely there is an intermediate pair without corresponding primary: see fig. marked in white.

The ribs pass with forward arching over periphery, which becomes more inflated with age. Umbilicus small, without recession.

Genus, LONGÆVICERAS, nov. p. *xiv*; family, Cadocerasidæ, Hyatt 1900.

Geological position: from a bed of Leckenby's Kelloway Rock, matrix brown, somewhat sandy, occasionally oolitic (S. Buckman, 1913, 154).

*Result*

LONGÆVICERAS LONGÆVUM, Bean cit. Leckenby 1859, Callovian, *athleta* zone, Scarborough, Yorkshire.

*Note*

The other three syntypes, all much about the same size, presumably adults as they show body-chamber and umbilical expansion, differ from *Am. longævus* (lectotype):—Ribs feebly arcuate, nearly coincident with straight line (versiradiate), bifurcation variable as to position and irregular in degree—a regular sequence of one long and one short, the latter due sometimes to furcation, sometimes to intercalation; periphery sharper and its ribs with apex of V less rounded.

Matrix, greyish-brown, rather finely oolitic. Dimensions of figured specimen, 35, 46, 26, 19; about half-whorl body-chamber. Gen. and spec. nov., *Pseudocadoceras boreale*, [Callovian, *kænigi*-zone], Scarborough, Yorkshire, Pl. CXXI B; Holotype. See *Cadoceras*, sp. nov., S. Buckman, Q.J.G.S., LXIX, 1913, 154, 162.

Fig. 1



Fig. 2

AMMONITES LONGÆVUS, BEAN (LECKENBY) 1859  
Sedgwick Museum, Cambridge (Leckenby Coll.) Lectotype  
Fig. 1, Side view ; Fig. 2, Peripheral view

LONGÆVICERAS LONGÆVUM, BEAN SP.



Fig. 1



Fig. 2

AMMONITES LONGÆVUS, BEAN (LECKENBY) 1859  
Sedgwick Museum, Cambridge (Leckenby Coll.); Syntype  
Fig. 1, Side view; Fig. 2, Peripheral view

PSEUDOCADOCERAS BOREALE, nov., Holotype





## Comparable Species

Lectotype, 51 47 33 15

F. 96(48),	49,	22?	8,— <i>Am. funiferus</i> , Phillips, 1829, vi, 23.
F. 95,	56,	25,	9, } <i>Am. Galdriaus</i> , d'Orbigny, 1846, CLVI
T. 90,	56,	28,	6, } ( <i>Am. Galdrynus</i> , p. 438, 1847).
S. 58,	52,	(34?),	19,— <i>Am. placenta</i> , Simpson-Leckenby, 1859, 11, 1.
F. 47,	53,	35,	17,— <i>Quenstedticeras Lamberti</i> ; Weissmerl, 1895, x, 4.

Syntype = *P. boreale*,—35 46 26 19

T. 30,	41,	35,	25,— <i>Am. Leachi</i> ; d'Orbigny, 1845, xxxv, 7-9 redrawn as
F. 29,	43,	28,	24,— <i>Am. Mariæ</i> , d'Orbigny, 1848, CLXXIX, 7-9.
F. 30,	41,	30,	22,— <i>Quenstedticeras primigenium</i> , Parona & Bonarelli, 1895, II, 4.
T. 23,	39,	39,	33,— <i>Cadoceras catostoma</i> , Pompeckj, 1900, v, 1.
F. 23.5,	41,	34,	29, } <i>C. Schmidt</i> , Id., v, 3.
T. 23,	46,	38,	27, }
F. 33.5,	41,	39,	27, } <i>C. Grewingk</i> , Id. vi, 1.
T. 32.3,	46,	40,	28, }
F. 47,	40,	39(30),	29, } Id., vi, 2.
T. 37,	43,	40,	29, }
F. 33,	43,	29,	(28?),— <i>C. Petelini</i> , Id., vi, 6.



Fig. 3 × 4

Fig. 1



Fig. 2

## Fam. ECHIOCERATIDÆ

[Sinemurian, *oxynotum* (*Gagaticeras*) zone, Robin Hoods Bay], Whitby,  
J. W. Tutchter Coll. S. 51, 25, 25, 54; see LXXVIII

GAGATICERAS FUNICULATUM, nov., Holotype



Fig. 1



Fig 2



## AMMONITES CENTAURUS ; J. BUCKMAN

Geol. Chelt. New Ed. 1844, p. 89, Lower Lias Shales [Charmouthian, *capricorn./striatum* (*Beaniceras*) zone], Hewletts Road, Cheltenham, Glos S. B. Coll. No. 2751 ; S. 14, 35, 57, 42 ; 29, 29, 33, 52. See LXXIII

BEANICERAS COSTATUM, nov., Holotype

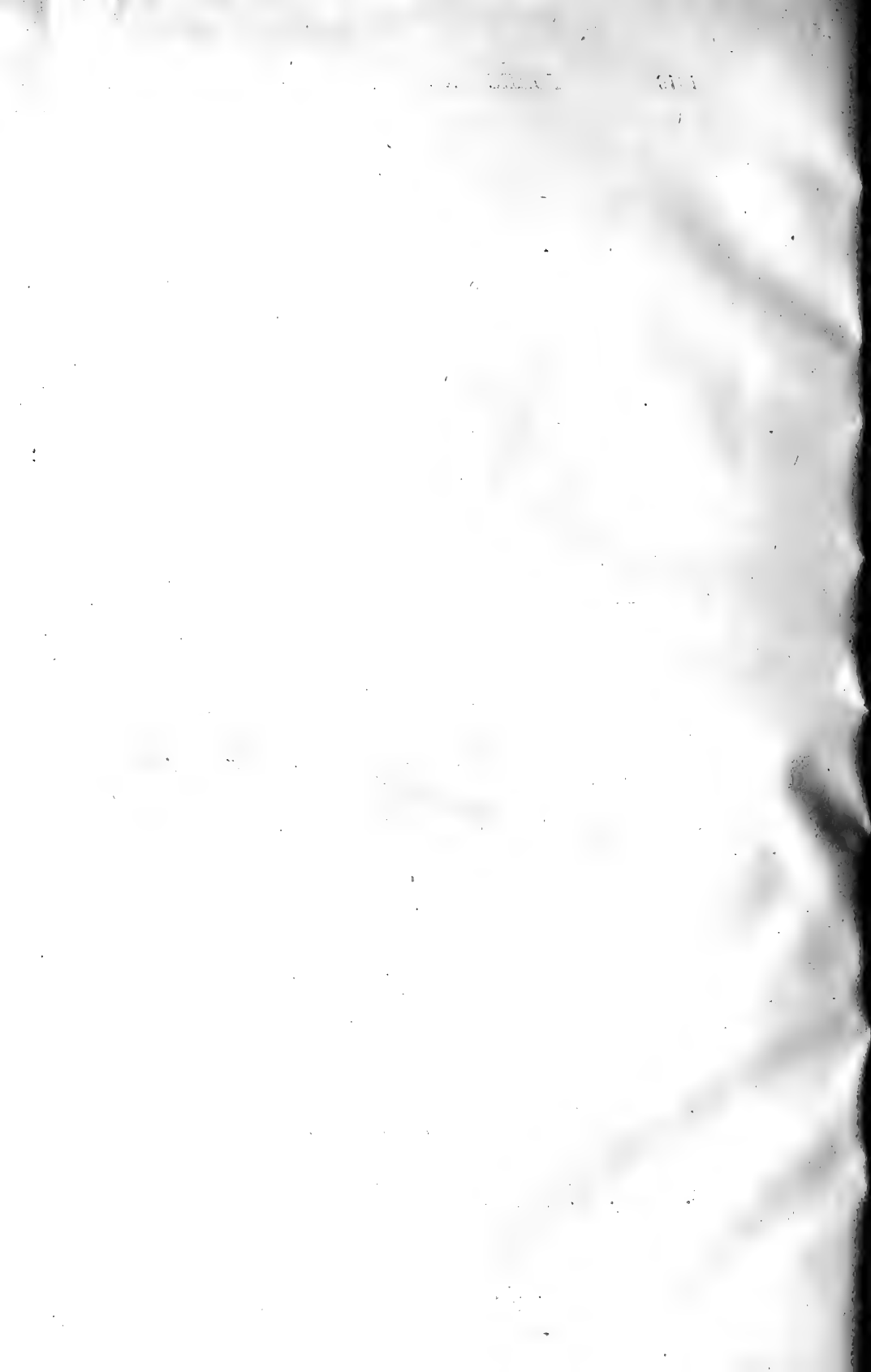


Fig. 2



Fig. 1



BIFERICERAS BIFERUM, QUENSTEDT SP.  
Sinemurian, *oxynotum(biferum)* zone, Canard's Grave, Shepton Mallet,  
Somerset; S. Buckman Coll. No. 2753, Genoholotype  
S. 26, 24, 48, 58; S. 39, 20, 33, 56. See II, *iii*

BIFERICERAS BIFERUM, QUENSTEDT SP.







AMMONITES SEDGWICKII, J. BUCKMAN, 1844  
Geol. Chelt. New Ed., p. 40; Marlstone [Domerian, c. *margaritatus*]  
Alderton-Dumbleton, Glos, Chirotype with orig. label ex J. Buckman Coll.  
The Manchester Museum; S. 47, 42, 13, 30. See No. 25

AMALTHEUS SEDGWICKII, J. BUCKMAN SP., Holotype.



Fig. 1



Fig. 2



AMMONITES CENTAURUS; J. BUCKMAN  
Geol. Chelt. New Ed. 1844, p. 89; Lower Lias Shales, (Charmouthian,  
*capricorn./striatum* (*Beaniceras*) zone), Hewletts Road, Cheltenham, Glos.  
S. Buckman Coll. No. 2749; S. 9, 42, 65, 22; 18, 33, 39, 41  
See No. 73

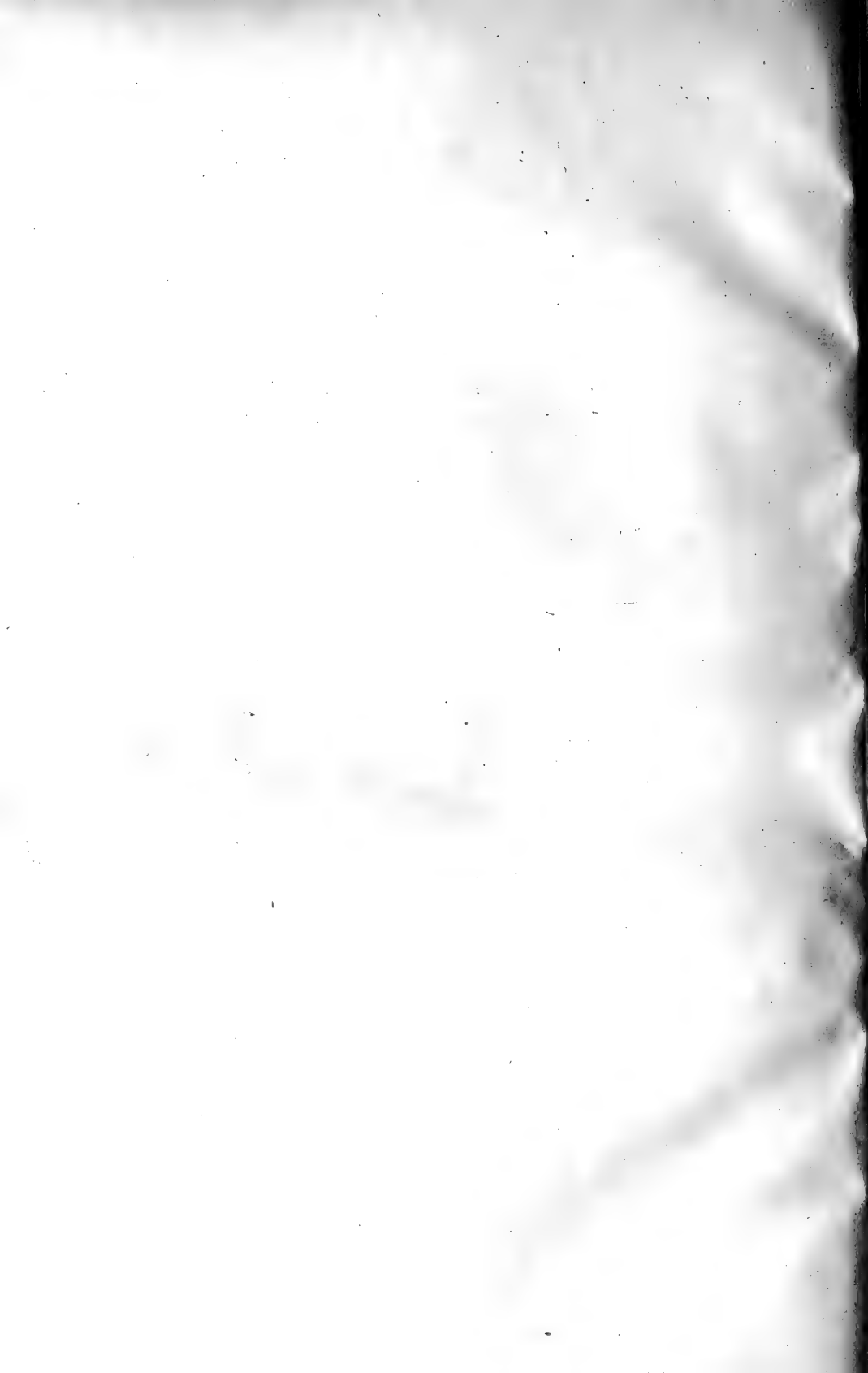
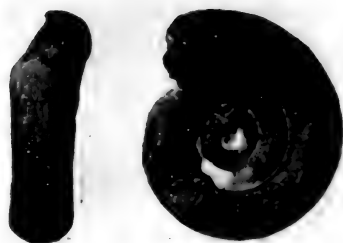


Fig. 2

Fig. 1



× 2

MICROCERAS PARVUM, S. BUCKMAN, 1904  
Sinemurian, *oxynotum* (*biferum*) zone, Canard's Grave, Shepton Mallet,  
Somerset, S. Buckman Coll. No. 2755, Holotype  
Nom. S. B. in Richardson, Hdb. Geol. Chelt. (Quenstedt, error)  
S. 12.5, 25, 33, 53; S. 15, 27, —, 53, lopsided. See CXXIV

BIFERICERAS PARVUM, S. BUCKMAN SP.



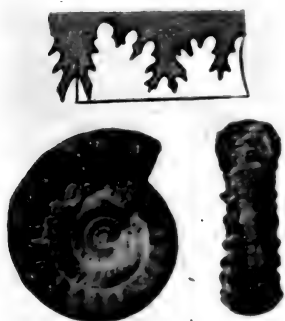
Fig. 3  $\times 3$ 

Fig. 1

Fig. 2

BIFERICERAS NUDICOSTA, QUENSTEDT SP.  
Sinemurian, *oxynotum* (*biferum*) zone, Canard's Grave, Shepton Mallet,  
Somerset, S. Buckman Coll. No. 2754  
S. 17, 23, 36, 54; S. 26, 21, 32, 58. See CXXVII

BIFERICERAS NUDICOSTA, QUENSTEDT SP.





Fig. 1



× 2

Fig. 2



× 2

## AMMONITES CENTAURUS; J. BUCKMAN

Geol. Chelt. New Ed. 1844, p. 89, Lower Lias Shales [Charmouthian, *capricorn.* / *striatum* (*Beaniceras*) zone], Hewletts Road, Cheltenham, Glos  
S. Buckman Coll. No. 2752, × 2; S. 11.5, 36, 55, 27; See CXXVI

BEANICERAS ROTUNDUM, nov., Holotype



Fig. 2

x



Fig. 3

x 2

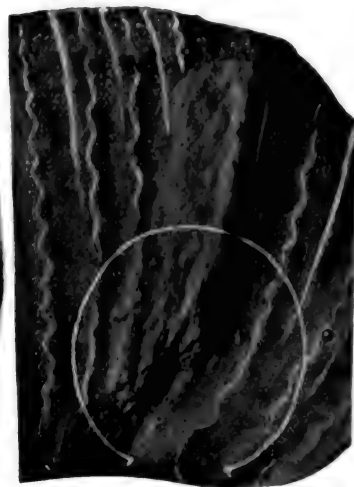
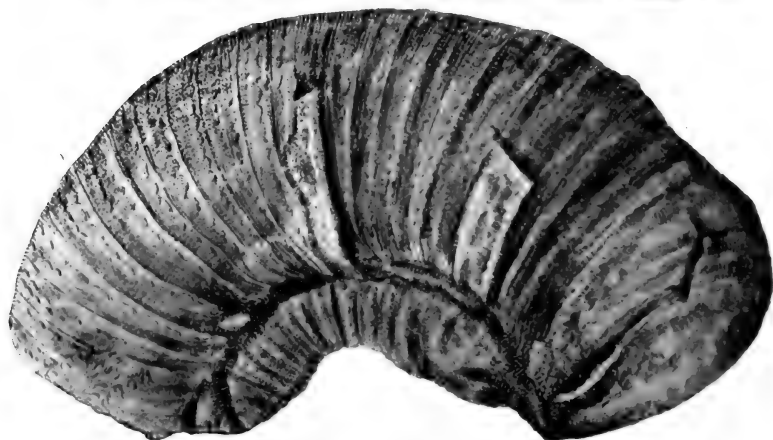
Fig. 4  
N. S.

Fig. 1

## AMMONITES FIMBRIATUS, J. SOWERBY, June 1817

Fig. 1, Copy of Protograph, Min. Conch. Pl. CLXIV; "Blue Lyas, at Lyme Regis, Dorsetshire" p. 145; Figs. 2, 3, Cast of squeeze of Holotype, Univ. Mus. Oxford; S. (cast), (94, 34, 34, 39), F. 109, 35, —, 35; See II, *xiii*

FIMBRILYTOCERAS FIMBRIATUM, J. SOWERBY SP.



Fig. 3  
N. S.



Fig. 4  
× 2

Fig. 1  
× 0.9



Fig. 5  
× 0.6



Charmouthian [*valdani* zone], Black Ven, Charmouth, Dorset  
J. W. Tutchter Coll.; S. III, 35, 33, 38

FIMBRILYTOCERAS FIMBRIATUM, J. SOWERBY SP., Topotype



Fig. 2

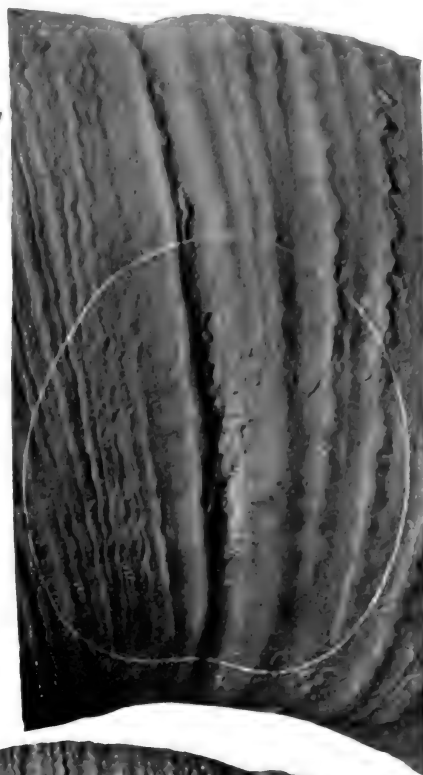
Fig. 4  
× 2Fig. 3  
N. S.

Fig. 1



Charmouthian, [*valdani* zone], near Charmouth, Dorset  
J. W. Tutchter Coll.; S. (168, 34, 32, 43)





## APPENDIX

## I, ZOOLOGICAL ANALYSIS

(Pls. I-CXXX. On the lines of the Synopsis, xvi)

- IV, 3, *PSILO CERATIDÆ* (*CALOCERATIDÆ*): *Schlotheimia* 38; *Caloceras* 17, 18.
- IV, 2, *LYTO CERATIDÆ*: *Fimbrilytoceras*, 130; *Alocolytoceras*, 88; *Pleurolytoceras*, 70.
- IV, 1, *PHYLLOCERATIDÆ*: *Phylloceras*, 34; *Tragophylloceras* (*Rhacoceras*), 16.
- III, 2, *ASPIDOCERATIDÆ*: *Peltoceras*, 99.
- PERISPHINCTIDÆ*: *Perisphinctes*, 113.
- PACHYCERATIDÆ*: *Pachyceras*, 115.
- OTOITIDÆ*: *Otoites*, 81.
- III, 1, *DEROCERATIDÆ*: *Deroceras*, 44, 64, 65, 71, 72, 82-84, 94, 95, 102-105; *Xipheroceras*, 39;
- DACTYLIO CERATIDÆ*: *Peronoceras*, 30, 63; *Porpoceras*, 29, 50, 57, 90, 91; *Dactylioceras*, 31, 51, 58, 62, 68, 107; *Cœloceras*; 59, 60, 61, 69, 89, 119.
- POLYMORPHIDÆ*: *Platyleuroceras*, 3; *Uptonia*, 2, 21, 92; *Polymorphites*, 53.
- II, *OPPELIDÆ*: *Phlycticeras*, 98.
- CADOCERATIDÆ*: *Vertumnicer*as, 116; *Prorsiceras*, 117; *Eboracicer*as, 118; *Quenstedtoceras*, 118; *Longæviceras*, 121; *Pseudocadoceras*, 121.
- I, 3, *AMALTHEIDÆ*: *Amaltheus*, 1, 25, 109, 125. *Amauroceras* (*Amaltheus*) 20; *Paltopleuroceras*, 22, 24, 52, 77; *Defossiceras*, 76.
- I, 2, *LIPAROCERATIDÆ*: *Phricodoceras*, 32, 33; *Oistoceras*, 26, 27, *Anisoloboceras* (*Ægoceras*), 37; *Liparoceras*; 108; *Androgynoceras*, 45-48; *Bifericeras*; 124, 127, 128; *Beaniceras*, 73, 123, 126, 129.
- I, 1, *HILDOCERATIDÆ*: *Harpoceras*, 4, 5; *Harpoceratoides*, 9; *Ovaticeras*, 111, *Tiltoniceras*, 97; *Elegantuliceras*, 93, 106; *Eleganticeras*, 110; *Whithyiceras*, 80; *Pseudogrammoceras*, 79; *Pseudolioceras*, 10-13, 41-43; *Hildoceras* 12, 114; *Phymatoceras*, 85; *Haugia*, 15; *Denckmannia*, 14; *Seguenziceras*, 74.
- ECHIOCERATIDÆ*: *Echioceras*, 19, 28, 49, 96; *Parechioceras*, 100, 101; *Gagaticeras*, 78, 122.
- AMMONITIDÆ* (*ARIETIDÆ*): *Oxynoticer*as, 7, 8, 36, 55, 56; *Ætomoceras*, 66; *Arietites*, 35, 54, 67, 120; *Agassiceras*, 6, 75; *Arnioceras*, 40, 112;
- CYMBITIDÆ*: *Frechiella*, 23.

## II, CHRONOLOGICAL ANALYSIS

(Pls. I-CXXX. In approximate chronological order—late to early—in each age).

- | <i>Ages</i>   | <i>Genera</i>  |
|---|--|
| <b>DIVESIAN</b> : (115-118)   | Prorsiceras, Eboraciceras, Vertumniceras, Pachyceras, Quenstedtoceras.   |
| <b>CALLOVIAN</b> : (98, 99, 113, 121)   | Peltoceras, Perisphinctes, Longæviceras, Pseudocadoceras, Phlycticeras.  |
| <b>BAJOCIAN</b> : (81)  | Otoites.   |
| <b>YEOVILIAN</b> : (70, 79, 88)   | Alocolytoceras, Pseudogrammoceras, Pleurolytoceras.  |
| <b>WHITBIAN</b> : (4, 5, 9-15, 23, 29-31, 34, 41-43, 50, 57, 59-63, 68, 69, 80, 85-87, 89-93, 106, 107, 110, 111, 114, 119)               | Phymatoceras, Haugia, Denckmannia, Whitbyiceras, Pseudolioceras, Peronoceras, Porpoceras, Dactylioceras, Cæloceras, Hildoceras, Frechiella, Ovaticeras, Harpoceras, Harpoceratoides, Phylloceras, Trachylitoceras, Eleganticeras, Elegantuliceras. |
| <b>DOMERIAN</b> : (1, 22, 24, 25, 37, 51, 52, 58, 74, 77, 79, 109, 125)   | Dactylioceras, Tiltoniceras, Paltopleuroceras, Amauroceras, Amaltheus, Anisoloboceras, Seguenziceras.  |
| <b>CHARMOUTHIAN</b> : (2, 3, 16, 21, 26-28, 32, 33, 44-46, 53, 64, 65, 71-73, 76, 82-84, [92], 94, 95, [96], 102-105, 108, 123, 129, 130) | Oistoceras, Defossiceras, Beaniceras, Androgynoceras, Liparoceras, Tragophylloceras, Fimbriyltoceras, Platyleuroceras, Polymorphites, Uptonia, Phricodoceras, Deroceras, Echioceras.   |
| <b>SINEMURIAN</b> : (6-8, 19, 28, 35, 36, 38-40, 47-49, 54-56, 66, 67, 75, 78, 100, 101, 112, 120, 122, 124, 127, 128)                    | Oxynoticeras, Bifericeras, Ætomoceras, Androgynoceras, Parechioceras, Gagaticeras, Arietites, Schlotheimia, Xipheroceras, Arnioceras, Agassiceras.   |
| <b>HETTANGIAN</b> : (17, 18)  | Caloceras.   |

## POSTSCRIPT

The second Volume of Yorkshire Type Ammonites with 83 Plates illustrating 68 species is now presented with title-page and index for binding. The two volumes of 18 parts contain 163 plates illustrating 137 species. This does not finish the illustration of the type Ammonites of Yorkshire, but it completes, so far as circumstances have allowed, the work which was projected. A continuation illustrating the Yorkshire

species but including also types of the British Isles generally is being prepared for issue under the title "Type Ammonites." In size, style, and illustration it will be uniform with this work, but owing to great increase in costs some modifications will be necessary. Of this work information is given in the accompanying leaflet.

The Editor has much pleasure in offering cordial thanks for very kind assistance. To the helpers already noted (I, e; II, v) there are gratefully added Sir Aubrey Strahan, Messrs. H. A. Allen, and J. Pringle (Geol. Surv. England); Dr. J. S. Flett and Dr. G. W. Lee (Geol. Surv. Scotland); the late Mr. G. C. Crick and Mr. W. D. Lang (Brit. Mus. Nat. Hist.); Mr. J. Woodhouse Parkinson (Whitby Museum); Prof. J. Welsch, Dr. Siemiradzki, Miss Tsytovitch, MM. de Grossouvre, P. Petitclerc, Dr. A. Salfeld, Dr. A. Morley Davies, Messrs. T. Sheppard, A. E. Trueman, L. L. Belinfante, C. P. Chatwin, J. T. Sewell and others. Mr. V. E. Robson, has given very considerable assistance in the preparation of MS. and in many other ways. Mr. J. W. Tutchter has not only fully met the perhaps somewhat exacting demands made with regard to photographic work, but has also continuously rendered great help in various scientific questions. The careful work of the printers (Messrs. Norman, Sawyer & Co.) also deserves grateful acknowledgment.

#### ADDENDA, CORRIGENDA

##### VOL. I

(See also Vol. I, p. c)

- Page vi, line 6, for '*bisculatus*' read "*bisulcatus*"  
 P. vii, l. 4 up, after 'd'Orb.' place "  
 P. viii, l. 4, for 'Quenst. sp.' read "Quenst. sp." This".  
 P. 3c, l. 2 up, for '*Cyloceras*' read "*Cycloceras*".  
 P. 7b, l. 25, for 'ind. band 3' read "ind. band 13"  
 P. 9, l. 1, for 'ALTERATUS,' read "ALTERNATUS."  
 P. 11b, l. 6, for ' . *concavus*,' read " *a. concavus*"  
 P. 11c, l. 2, for '*compactilie*' read "*compactile*."  
 P. 13c, l. 7, for '*H. compactilis*' read "*H. compactile*."  
 P. 18c, l. 2, for '*psilnotus*' read "*psilonotus*"  
 P. 25d. Remove *A. lenticularis* and *A. subnodosus*.  
 No. 28. *Echioceras aureolum* is Paratype of *Echioceras regustatum*,  
 see p. 96c. Pl. XXVIII to be inscribed accordingly  
 P. 58c, l. 8, delete 35.  
 P. 62c, l. 5, delete 35.  
 P. c, l. 3, for '23d' read "25d".  
 P. e, l. 14, for '67' read "69".  
 P. e, l. 18 up, for 'as illustrating' read "of illustrating".  
 P. e, l. 5 up, after 'British Museum' add "also Nat. Hist. Dept."  
 (V.E.R.).  
 P. f, for 'Cricone' read "Criocone"

## VOL. II

- P. x, Table, opposite 'digona' put "Bradford Clay"; and for 'niortensis' read "niortense"
- P. x, note 3, l. 2, for 'Cinch.' read "Conch."
- P. *xiii*, l. 23, for 'nat. size' read "x 0.9".
- P. 68c, for '*braunianus*, Dumortier' read "*braunianus*; Dumortier."
- P. 70b, l. 5 up, for '*dispansum*' read "*striatulum*" so far as concerns Gloucestershire, and possibly for Yorkshire.
- P. 74c, l. 11, put ';' for ",'" after *algovianus*.
- P. 74c, l. 13, put ' for ".'" after *ruthenense*.
- Part x, title p., for 'Pages v, vi' read "Pages v, *vi*"
- P. 90b, l. 8 up, for 'bifurcate' read "bifurcates"
- P. 96b, l. 13, for 'Museum' read "Museum."
- P. 96c, l. 15, for 'F. 24' read "S. 24."
- P. 96d, l. 31, for 'Raasay, Isle of Mull' read "Isle of Raasay."
- P. 97b, l. 20, for 'XCV' read "XCVII."
- P. 97b, l. 5 up, for 'XC' read "XCVII."
- Pl. XCIX, after 'Side view' add "x 0.7."
- P. 100b, l. 9, for 'numerou sstrong' read "numerous strong."
- P. 107c, heading, for '*DELICATUS*' read "*GRACILIS*"
- P. 109b, l. 16, for 'Hawkser' read "Hawsker."
- P. 116b, l. 3 up, before '*Vertumniceiras*' place "(."

## DIRECTIONS TO THE BINDER.

Vol. I is designed to be bound as follows:—Fly-leaf; Title-page; pp. iii—xiv; Systematic (fly-leaf); pp. *i-viii*; Descriptions & Plates (fly-leaf); Nos. 1-67 with same-numbered plates interposed—left-hand margin of plates provided to be folded in; [p. A] Appendix; pp. c-g, with Measurement Table facing p. d to open clear of book.

✓ Vol. II:—Fly-leaf; Title-page; pp. v—x; [p. *i*] Systematic; pp. *iii-xvi*; Descriptions & Plates (fly-leaf); Nos. 68-121 with same-numbered plates interposed; Supplementary Plates CXXII-CXXXc; [p. A] Appendix; pp. B-G.

In both cases title-pages of parts should be bound in, at beginning or end, as corroboration of dates of publication and respective contents.

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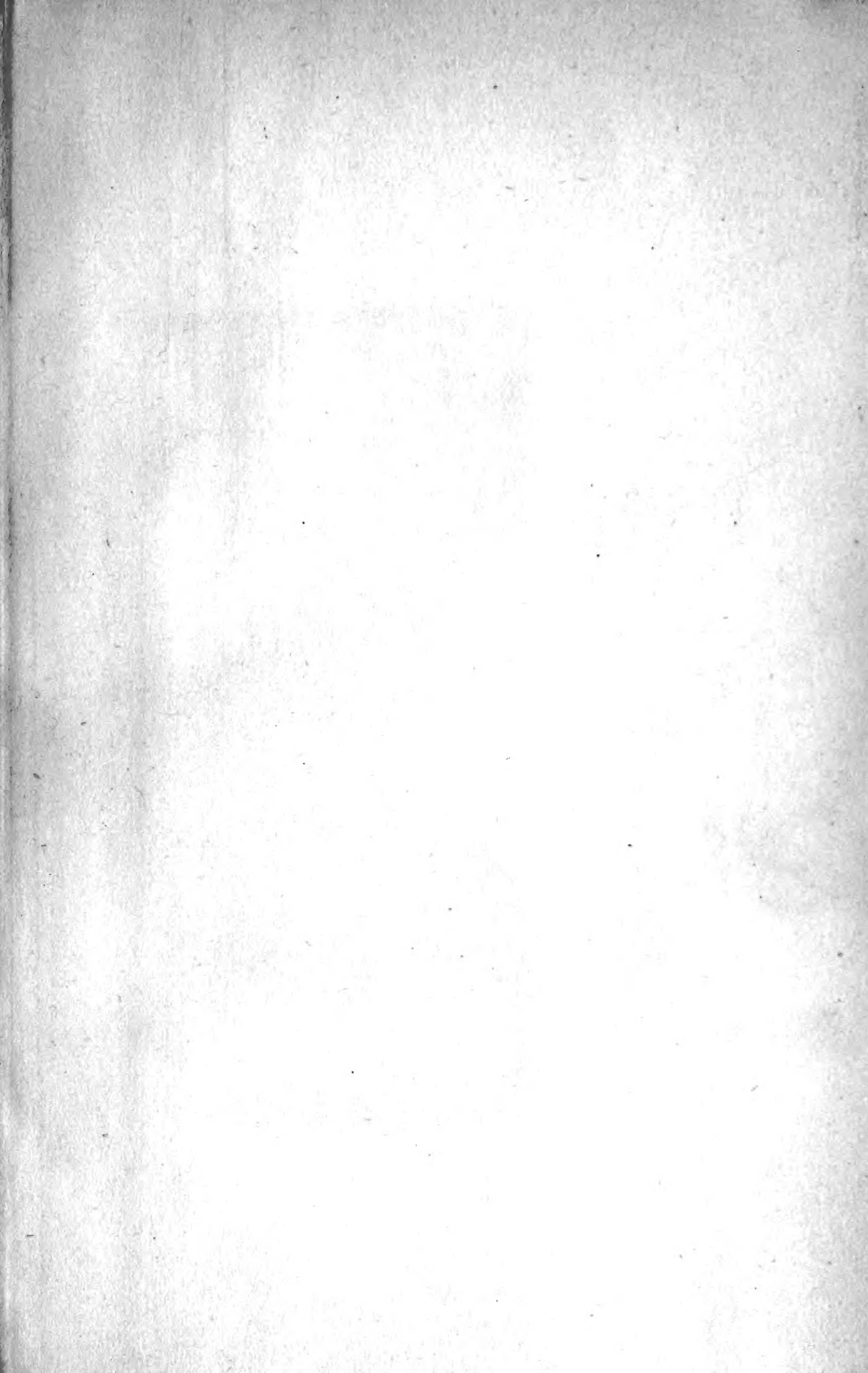
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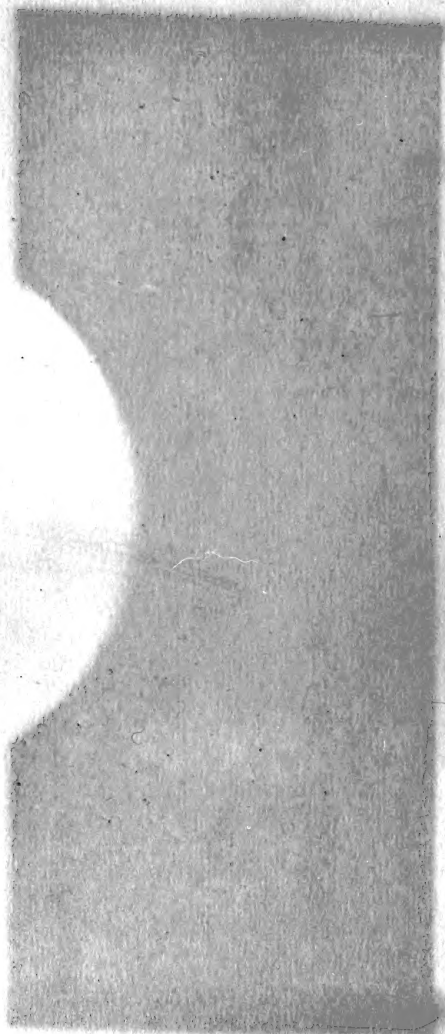
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